

## User's Manual

P/N 067054-003

# 1470/1471 Imager

 **Intermec**

A  **UNOVA** Company

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#### **Patents**

3,991,299; 4,570,057; 5,021,642; 5,038,024; 5,081,343; 5,095,197; 5,144,119; 5,144,121; 5,182,441; 5,187,355; 5,187,356; 5,218,191; 5,233,172; 5,258,606; 5,286,960; 5,288,985; 5,420,409; 5,463,214; 5,541,419; 5,569,902; 5,591,956; 5,723,853; 5,723,868; 5,773,806; 5,773,810; 5,780,834; 5,784,102; 5,786,586; 5,825,006; 5,837,985; 5,838,495; 5,900,613; 5,914,476; D400,199; 5,292,418; 5,932,862; 5,942,741; 5,949,052; 5,965,863; 5,992,744; 6,045,047; 6,060,722.

Other U.S. and foreign patents pending.

## ***Manual Change Record***

This page records the changes to this manual. The manual was originally released as version 001.

<b>Version</b>	<b>Date</b>	<b>Description of Change</b>
002	6/98	This manual was changed to add information for the 1470 imager.
003	6/01	This manual was changed to add information for the Rev. B release of the 1470/1471 imager.



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## **Before You Begin**

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This section introduces you to standard warranty provisions, safety precautions, warnings and cautions, document formatting conventions, and sources of additional product information.

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### **Warranty Information**

To receive a copy of the standard warranty provision for this product, contact your local Intermec support services organization. In the U.S. call 1-800-755-5505, and in Canada call 1-800-668-7043. If you live outside of the U.S. or Canada, you can find your local Intermec support services organization on the Intermec Web site at [www.intermec.com](http://www.intermec.com).

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### **Safety Summary**

Your safety is extremely important. Read and follow all warnings and cautions in this book before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

**Do not repair or adjust alone** Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

**First aid** Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

**Resuscitation** Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

**Energized equipment** Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

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## **Warnings, Cautions, and Notes**

The warnings, cautions, and notes in this manual use the following format.



### **Warning**

*A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.*

### **Avertissement**

*Un avertissement vous alerte d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour éviter l'occurrence de mort ou de blessures graves aux personnes manipulant l'équipement.*



### **Caution**

*A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.*

### **Conseil**

*Une précaution vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.*



**Note:** Notes are statements that either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

## **About This Manual**

All the information you need to install, configure, operate, maintain, and troubleshoot the 1470 and 1471 imagers is in this manual. Information in this manual should be used by the person who will be installing and configuring the 147X imagers. This manual assumes that you are familiar with your network and data communications.

### **Terms**

- The 1470 and 1471 imagers are referred to as “the 1470,” “the 1471,” or “the 147X.”
- The term “imager” refers to the 1470 and 1471 imagers.

### **Conventions**

This manual uses these conventions to explain how to use your mouse and to emphasize input from a PC keyboard and a bar code.

### **Mouse Actions**

All the procedures in this manual assume that you are using a mouse to navigate within menus and dialog boxes. The following commands describe specific mouse actions:

**Select/Choose** Move the mouse pointer to an item and press the left mouse button once. The item or command is highlighted. For example, when you select an object in a list box, it is highlighted.

**Double-click** Move your mouse pointer to the item and click the left mouse button twice quickly. In many dialog boxes, you can double-click on an item instead of selecting it and choosing a button.

### **Input From a Host or PC Keyboard**

When you need to press keys on your host or PC, they are emphasized in **bold**. For example, “press **Enter**” means you press the key labeled “Enter” on the keyboard.

When you need to press and release a series of keys in order, the keys appear in order with no connectors. When you need to press more than one key at the same time, the keys are connected by a dash in the text. For example, press **Ctrl-Alt-Del** to perform a warm boot on a PC. When the keys are connected by a dash, you need to press and hold the keys in the order they appear in the text.

***Input From a Bar Code***

You can use your devices to scan the bar codes that are provided in this manual to enter data or perform a command.

Default



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***Other Intermec Manuals***

You may need additional information when working with the 147X in a data collection system. Please visit our Web site at [www.intermec.com](http://www.intermec.com) to download many of our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

1

## ***Introduction and Installation***



*This chapter explains how to unpack and install the 1470 and 1471 imagers.*

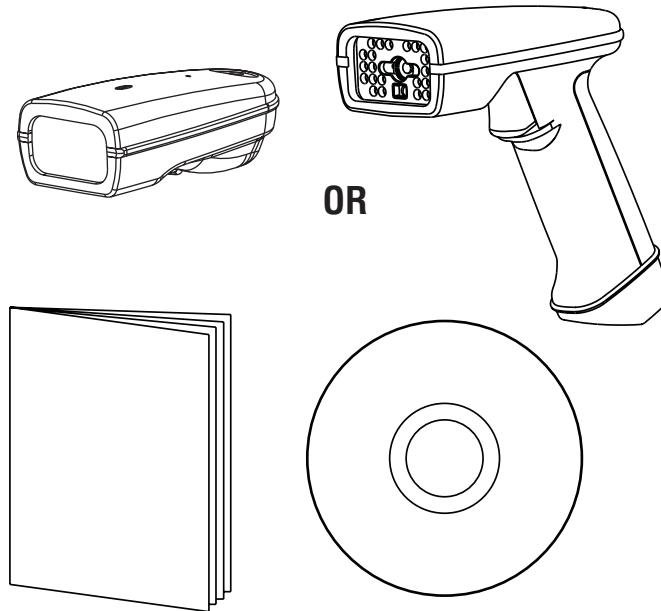
## **About the 1470/1471 Imager**

The 1470/1471 imager is an economical, durable solution for a wide variety of data collection applications. The imager features the following:

- A tough, ergonomic thermoplastic housing for comfort and durability
- Omnidirectional reading of a variety of printed bar codes, including the most popular linear and 2D matrix symbologies
- RS-232, keyboard wedge, and laser emulation communication outputs
- The ability to capture and download images to a PC for signature capture software applications and PC-based decoding
- The ability to read OCR fonts

## **Unpacking the Imager**

1. Open the carton. The shipping carton or container should contain:



1470/71G.001

2. Check to make sure everything you ordered is present.
3. Save the shipping container for later storage or shipping.

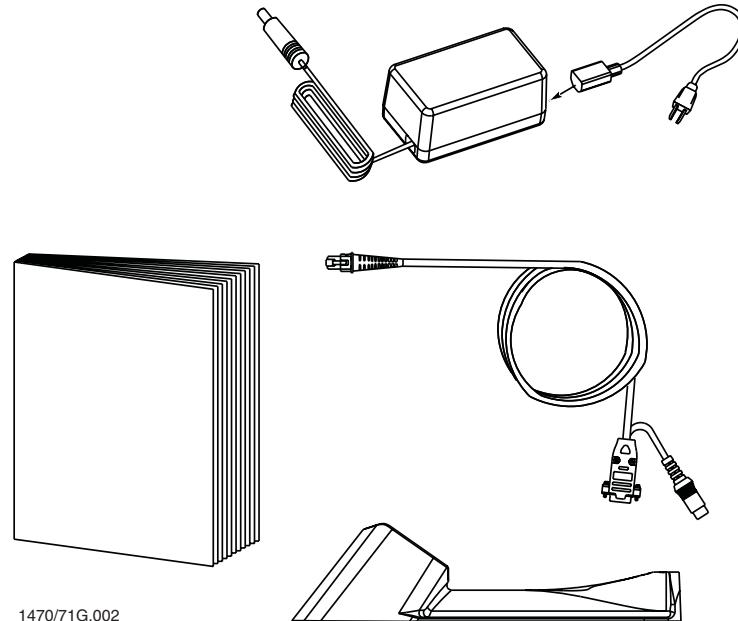
4. Check for damage during shipment. Report damage immediately to the carrier who delivered the carton.

## **Accessories**

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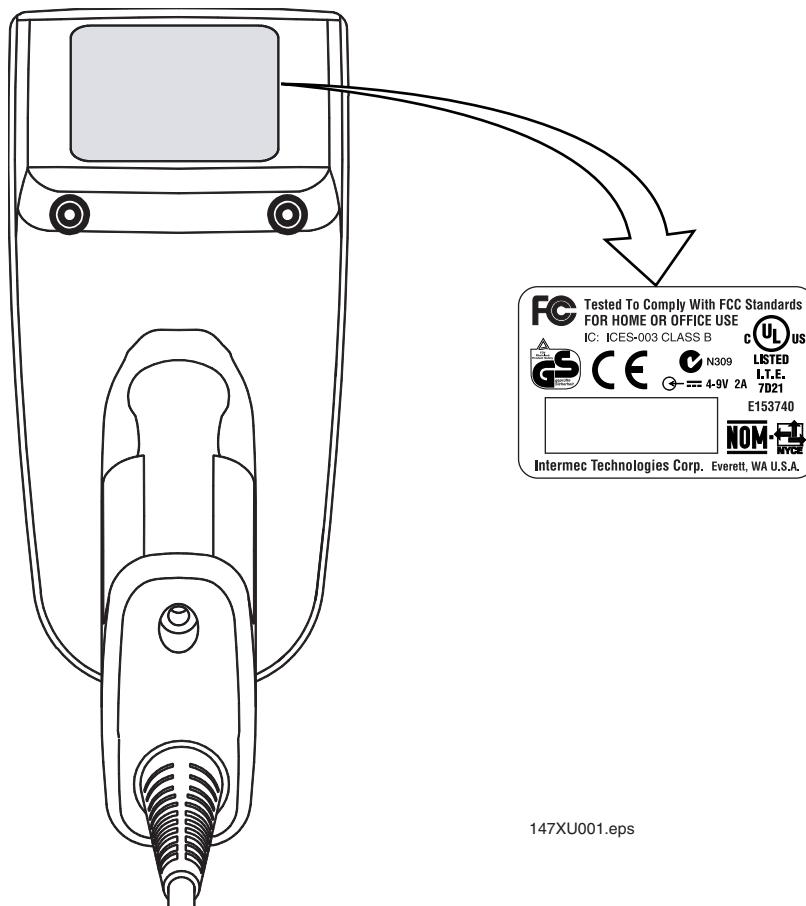
You can order the following accessories for the 147X imager:

- A universal power supply and power cable
- An interface cable
- A stand
- A holder
- This manual



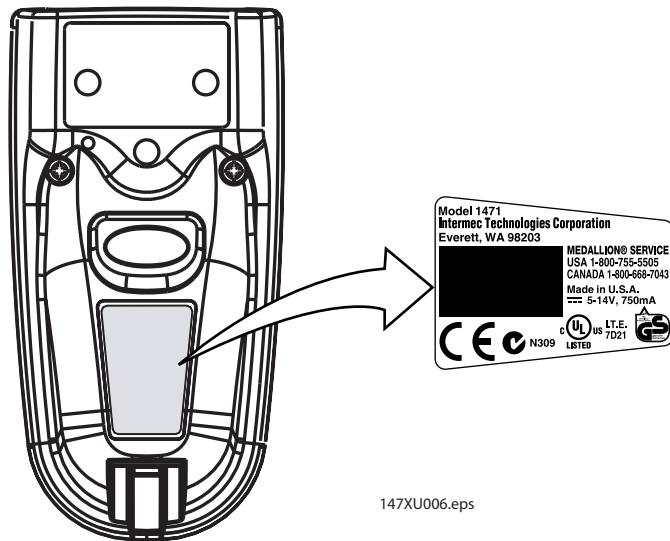
## ***1470 Imager Identification***

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## ***1471 Imager Identification***

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## ***Connecting the Imager in Keyboard Wedge Mode***

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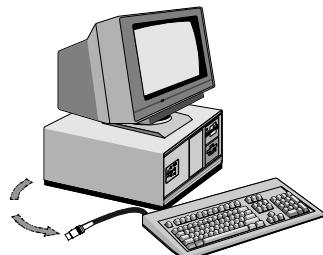
You can connect an imager between the keyboard and PC as a “keyboard wedge,” plugged into the serial port, or connected to a portable data terminal in non-decoded output mode.



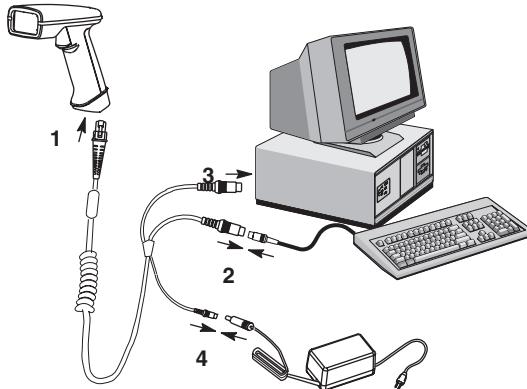
**Note:** The 147X imagers are factory defaulted to a serial RS-232 interface. For help connecting the imager to a serial port, see “Connecting the Imager to a Serial Port” later in this chapter.

### **To connect for a keyboard wedge interface**

1. Turn off power to the terminal/computer.
2. Disconnect the keyboard cable from the back of the terminal/computer.



3. Connect the appropriate interface cable to the imager and to the terminal/computer.



4. Connect the power supply (4 to 9V). The imager beeps twice.
5. Turn the terminal/computer power back on.
6. Verify the imager operation by scanning a bar code. The imager beeps once.

The imager is now connected and ready to communicate with your terminal/PC. You must program the imager for your interface before bar code data can be transmitted to your terminal/PC. If you are using the imager as a keyboard wedge, see “Terminal Interface” in Chapter 3. If the imager is connected via a serial port, see “Connecting the Imager to a Serial Port” in the next section.

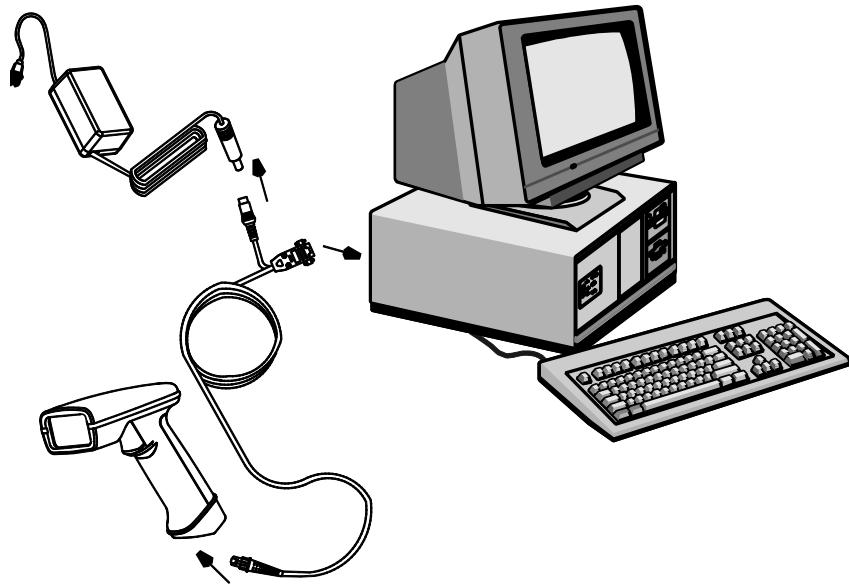
## ***Connecting the Imager to a Serial Port***

---

1. Turn off power to the terminal/computer.
2. Connect the interface cable to the imager.
3. Connect the interface cable to the power supply (4 to 9V) and plug in the power supply. The imager beeps twice.
4. Connect the interface cable to the terminal/computer.

---

***Connecting the Imager to a Serial Port***



5. Turn the terminal/computer power back on.
6. Verify the imager operation by scanning a bar code from Appendix B, "Sample and Programming Bar Codes." The imager beeps once.

The imager is now connected and ready to communicate with your terminal/PC. To program the communication parameters for a serial interface, see "Communication Settings" in Chapter 3.

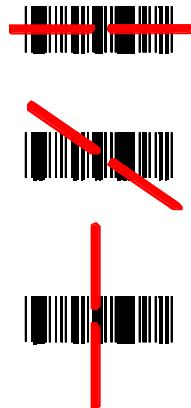
## ***Reading Techniques***

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The hand-held imager has a view finder that projects a bright red aiming beam that corresponds to the imager's horizontal field of view. The aiming beam should be centered over the bar code, but it can be positioned in any direction for a good read.

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### ***Linear Bar Code***



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### ***2D Matrix Bar code***



The aiming beam is smaller when the imager is closer to the code and larger when it is farther from the code. Symbologies with smaller bars or elements (mil size) should be read closer to the imager. Symbologies with larger bars or elements (mil size) should be read farther from the imager (see "Depth of Field Charts" in Appendix A). To read single or multiple bar codes (on a page or on an object), hold the imager at an appropriate distance from the target, pull the trigger, and center the aiming beam on the bar code.



2

## ***Installing Visual Menu***



*This chapter explains how to install and use Visual Menu.*

## ***Visual Menu Introduction***

---

You can use Visual Menu to configure the imager by connecting it to the COM port of a PC. Visual Menu allows you to download upgrades to an imager's firmware, change programmed parameters, and create and print programming bar codes. Using Visual Menu, you can even set up the configuration for an imager that is not attached to your PC. This enables one expert user to establish the configuration settings for all the devices your company uses, then save these configuration files for others. A configuration file can be emailed, or if you prefer, an expert user can create a bar code (or series of bar codes) that contains all the customized programming parameters and mail or fax the bar code(s) to any location. Users in other locations can scan the bar code(s) to load in the customized parameters.

To communicate with an imager, Visual Menu requires that the PC have at least one available serial communication port and an RS-232 cable to connect the port to the device. A power supply, which plugs into the cable, is also required.

## ***Visual Menu Operations***

---

The Visual Menu program performs the following operations:

- Displays all configuration data, and saves the information to a file on your PC.
- Configures the device to meet your specific requirements. Visual Menu has all the programming parameters that are available via programming bar codes in this user's manual.
- Creates and prints a clone bar code that contains the program and configuration data from one device. This bar code can then be used to program additional devices with the same parameters.
- Selects a device from a list, then performs offline or online file configuration for that device.

For help using visual menu to configure your imager, see the online help or Chapters 3 and 4.

## ***Temporary Keyboard Wedge Visual Menu Configuration***

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For quick download communication configuration, scan the Visual Menu bar code to temporarily configure the imager for Visual Menu settings.



**Note:** If you have an imager capable of keyboard wedge mode, scan the bar code below and the imager will communicate in RS-232 mode, allowing it to work with Visual Menu. To convert the imager back to keyboard wedge communication, cycle the power.

Visual Menu



## ***Installing Visual Menu***

---

1. Close all applications.
2. Place the CD-ROM that shipped with the 147X imager into your CD-ROM drive. Your Web browser opens.
3. Choose a language for the screens to appear in.
4. Click the ScanImage 1470/1471.
5. Click Software.
6. Click Install Visual Menu.
7. Choose Run this program from its current location and click OK.
8. Click Yes.
9. Follow the prompts through the Visual Menu install shield.

3

## ***Programming the 147X***



*Use this chapter to program the 147X imager.*

## Introduction

---

This chapter contains the following sections:

- Reset Factory Settings
- Status Check
- All Symbologies
- Revision Selections
- Terminal Interface
- Supported Terminals Chart
- Keyboard Country
- Keyboard Style
- Keyboard Modifiers
- Keyboard Function Relationships
- Communication Settings
- Serial Triggering
- Trigger Timeout
- Power Saving Mode
- Power Hold Mode
- LED Power Level
- LED Flashing
- Aimer Delay
- Aimer Interval
- AutoTrigger
- Setting the Beeper
- Intercharacter, Interfunction, and Intermassage Delays
- Prefix/Suffix Overview
- Data Format Editor Overview
- Output Sequence Overview
- Multiple Bar Codes
- No Read
- Print Weight
- Function Code Transmit

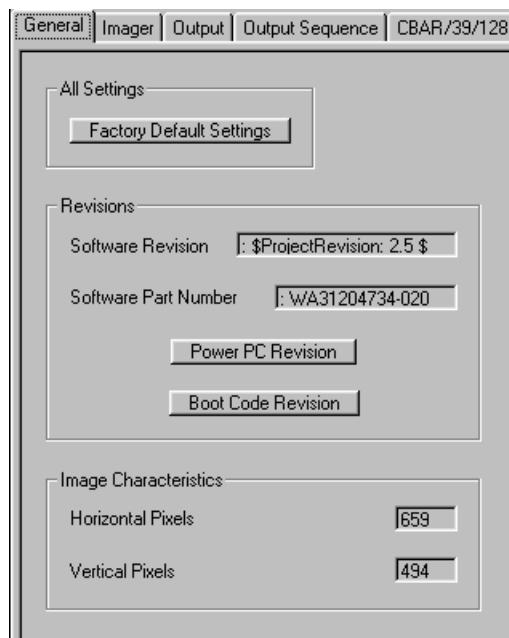


**Note:** The Visual Menu screens in this chapter may look different from the screens on your PC. Visual Menu only displays the settings that your imager supports.

## **Reset Factory Settings**

All operating parameters are stored in nonvolatile memory resident in the imager, where they are permanently retained in the event of a power interruption. When you receive your imager, certain operating parameters have already been set. These are the factory defaults. For default charts, see Chapter 7, "Default Charts."

From Visual Menu, click the Factory Default Settings button in the General tab and then click the Write Settings to Device button (  ).



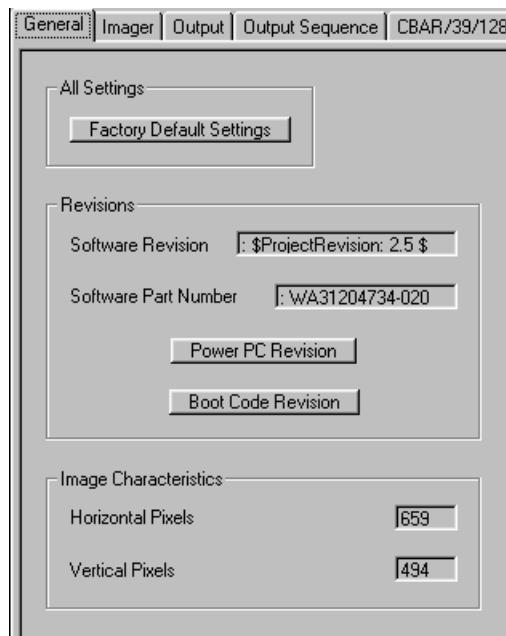
Or Scan the following bar code.

Default



## Status Check

You can see the software revision in the General tab of Visual Menu.



Read the Show Software Revision bar code to transmit the software revision level to the host terminal. The software revision will be printed out as “REV\_SW: \$ProjectRevision: 1.xx \$;REV\_WA: 31204734-xxx.”

Read the Show Data Formats bar code to transmit the existing Data Format Editor formats. One format per line will be printed out.

Show Software Revision



Show Data Formats



## **All Symbolologies**

---

If you want to decode all the symbologies allowable for your imager, scan the All Symbolologies On code. In Visual Menu, you need to turn on each symbology individually.

All Symbolologies On



All Symbolologies Off

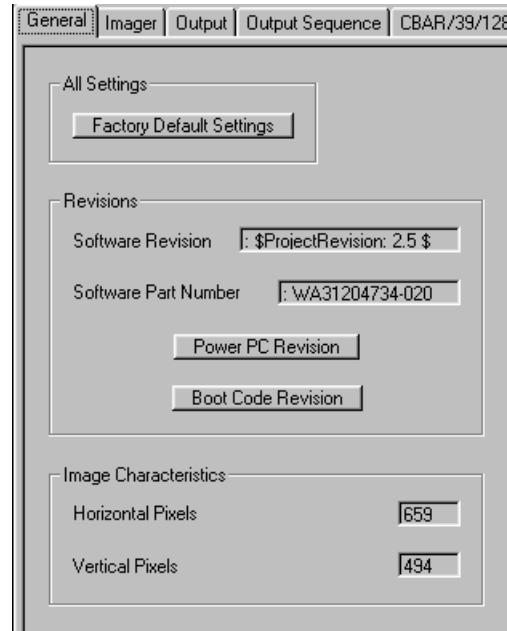


## **Revision Selections**

---

Power PC Revision and Boot Code Revision would not normally be needed unless you have a problem with the imager. A Technical Support Representative may request this information in order to troubleshoot a problem.

In Visual Menu, click Power PC Revision or Boot Code Revision.



Or scan one of the following bar codes.

Power PC Revision



Boot Code Revision



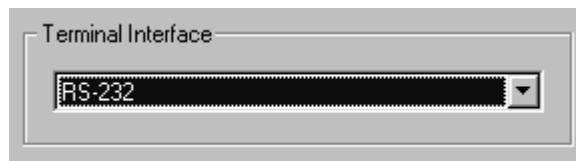
## ***Terminal Interface***

---

1470 and 1471 imagers are factory programmed for an RS-232 interface. If this is your interface and you do not need to modify the settings, skip to “Power Saving Mode” later in this chapter to begin programming the imager.

If your interface is not a standard RS-232 and you have a keyboard wedge cable, select your terminal interface from the drop down menu in the Interface tab of Visual Menu.

Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or refer to the “Supported Terminals Chart” later in this chapter and locate the Terminal ID number for your PC. Scan the Terminal ID bar code below, then scan the numeric bar code(s) in the “General Programming Chart” in Appendix B to program the imager for your terminal ID. Scan Save to save your selection.

For example, an IBM PS/2 terminal has a Terminal ID of 002. You would scan the Terminal ID bar code, then 0, 0, 2 from the “General Programming Chart” in Appendix B. If you make an error while scanning the digits (before scanning Save), scan the Discard code in the “General Programming Chart” in Appendix B and scan the digits and the Save code again.

The factory default for RS-232 imagers is 000; the default for Keyboard Wedge imagers is 003.

Terminal ID



Save



## ***Supported Terminals Chart***

---

<b>Terminal</b>	<b>Model(s)</b>	<b>Terminal I.D.</b>
DEC	PC433 SE (Portable PC)	003
DELL	Latitude (Portable PC)	003
DTK	486 SLC (Portable PC)	003
Fujitsu	Stylistic (Portable PC)	003
HHLC (Code 128 Emulation)		089
IBM	PC XT	001
IBM	PS/2 25, 30, 77DX2	002
IBM	AT, PS/2 30-286, 50, 55SX, 60, 70, 70-061, 70-121, 80	003
IBM	AT Compatibles Keyboard Emulation (Non-wedge)	003
IBM	Thinkpad 360 CSE, 34, 750 (Portable PC)	097
IBM	Thinkpad 365, 755 CV (Portable PC)	003
IBM	AT Thinkpad	106
Midwest	Micro Elite TS 30 PS (Portable PC)	003
Mitak	4022 (Portable PC)	003
Olivetti	M19, M24, M28, M200	001
Olivetti	M240, M250, M290, M380, P500	003
Reliasys	TR 175	003
RS-232 TTL		000
Televideo	990, 995, 9060	002
Texas Instruments	Extensa 560CD (Portable PC)	003
Toshiba	2600 (Portable PC)	003
Toshiba	Satellite T1960, T2130, CS (Portable PC)	003
Zenith	Z-note (Portable PC)	003

## Keyboard Country

As a general rule, the following characters are not supported by the imager for countries other than the United States:

@ | \$ # { } [ ] = / ‘ \ < > ~



**Note:** If your imager does not support Keyboard Wedge settings, the Keyboard Wedge tab does not appear in Visual Menu.

In the Keyboard Wedge tab of Visual Menu, choose the Keyboard Country. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan the Keyboard Country bar code below, then scan the numeric bar code(s) from the "General Programming Chart" in Appendix B, then the Save bar code to program the keyboard for your country.

Keyboard Country



Save



<b>Country Code</b>	<b>Scan</b>
Belgium	1
Denmark	8
Finland	2
France	3
Germany/Austria	4
Great Britain	7
Italy	5
Norway	9
Spain	10
Switzerland	6
U.S. (Default)	0

## ***Keyboard Style***

---

You can set different Keyboard Styles:

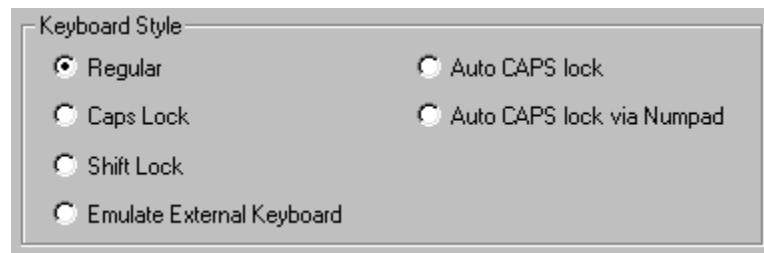
- Regular is used when you normally have the Caps Lock key off.
- Caps Lock is used when you normally have the Caps Lock key on.
- Shift Lock is used when you normally have the Shift Lock key on. (Not common to U.S. keyboards.)
- Automatic Caps Lock is used if you change the Caps Lock key on and off. The software tracks and reflects if you have Caps Lock on or off (AT and PS/2 only). This selection can only be used with systems that have an LED that notes the Caps Lock status.

- Emulate External Keyboard is used if you do not have an external keyboard (IBM AT or equivalent). To connect to a laptop, you must configure for Emulate External Keyboard mode, then set Automatic Direct Connect Mode On. For help setting Automatic Direct Connect Mode, see “Keyboard Modifiers” later in this chapter. After configuring these modes, you must reboot your laptop.



**Note:** If your imager does not support Keyboard Wedge settings, the Keyboard Wedge tab does not appear in Visual Menu.

In the Keyboard Wedge tab of Visual Menu, choose the Keyboard Style. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Regular\*



Caps Lock



Shift Lock



Automatic Caps Lock



Emulate External Keyboard



## **Keyboard Modifiers**

---

This section explains how to modify special keyboard features:

**Control + ASCII Mode On** The imager sends key combinations for ASCII control characters for values 00-1F. For CTRL+ ASCII Values, see “Keyboard Function Relationships” later in this chapter.

**Turbo Mode** The imager sends characters to an IBM AT terminal faster (for use with IBM AT only). If the terminal drops characters, do not use Turbo Mode.

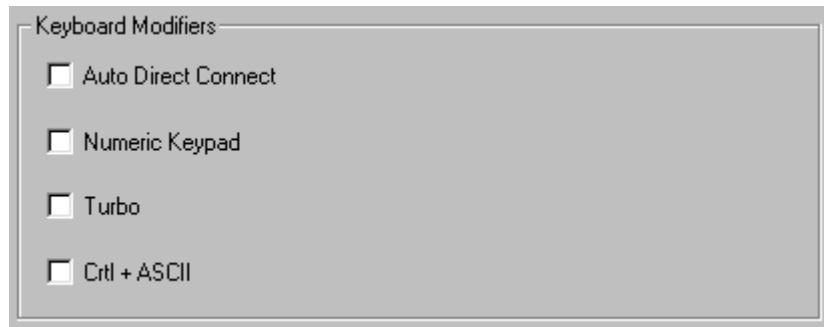
**Numeric Keypad Mode** Sends numeric characters as if entered from a numeric keypad.

**Automatic Direct Connect** Use this selection if you are using a laptop whose keyboard is disabled when you plug in the imager. This selection can also be used if you have an IBM AT style terminal and the system is dropping characters. After setting these selections, you must reboot your computer.



**Note:** If your imager does not support Keyboard Wedge settings, the Keyboard Wedge tab does not appear in Visual Menu.

In the Keyboard Wedge tab of Visual Menu, choose the Keyboard Modifier. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Control + ASCII Mode On



Control + ASCII Mode Off\*



***Keyboard Modifiers (continued)***

Turbo Mode On



Turbo Mode Off\*



Numeric Keypad Mode On



Numeric Keypad Mode Off\*



Automatic Direct Connect Mode On



Automatic Direct Connect Mode Off\*

***Keyboard Function Relationships***

The following Keyboard Function Code, hex/ASCII Value, and Full ASCII “CTRL”+ relationships apply to all terminals that can be used with the imager.

Function Code	HEX/ASCII Value	Full ASCII “CTRL” +
NUL	00	2
SOH	01	A
STX	02	B
ETX	03	C
EOT	04	D
ENQ	05	E
ACK	06	F
BEL	07	G
BS	08	H
HT	09	I
LF	0A	J
VT	0B	K
FF	0C	L

---

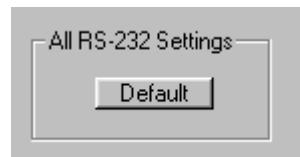
**Keyboard Function Relationships (continued)**

<b>Function Code</b>	<b>HEX/ASCII Value</b>	<b>Full ASCII “CTRL” +</b>
CR	0D	M
SO	0E	N
SI	0F	O
DLE	10	P
DC1	11	Q
DC2	12	R
DC3	13	S
DC4	14	T
NAK	15	U
SYN	16	V
ETB	17	W
CAN	18	X
EM	19	Y
SUB	1A	Z
ESC	1B	[
FS	1C	\
GS	1D	]
RS	1E	6
US	1F	-

## Communication Settings

In the Communication tab of Visual Menu, click Default under All RS-232 Settings.

Click the Write Settings to Device button () to send the new settings to the imager.



Or scan the following bar code to set the RS-232 communication settings to factory defaults:

Default All RS-232 Communication Settings



The following table provides the factory default settings.

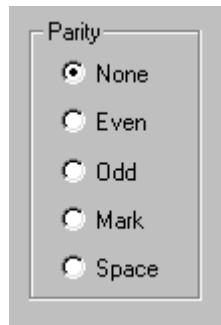
Setting	Default
Parity	None
Baud Rate	38400
Word Length Data Bits	8 data bits
Word Length Stop Bits	1 stop bit
Hardware Flow Control	Off
Software Flow Control	Off

---

## **Parity**

Parity provides a means of checking character bit patterns for validity. The imager can be configured to operate under Mark, Space, Odd, Even, or No (None) parity options. The host terminal must be set up for the same parity as the imager to ensure reliable communication.

In the Communication tab of Visual Menu, choose the parity setting you want. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Mark



Space



Odd



Even



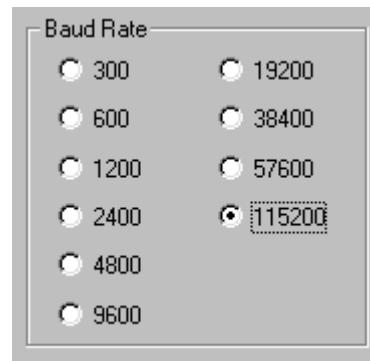
None\*



## Baud Rate

You can set the baud rate from 300 bits per second to 115,200 bits per second. Programming the baud rate causes the data to be sent at the specified rate. The host terminal must be set to the same baud rate as the imager to ensure reliable communication.

In the Communication tab of Visual Menu, choose the baud rate you want to use. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

300



600



1200



2400



4800



9600



---

**Baud Rate (continued)**

19200

38400\*



57600

115200

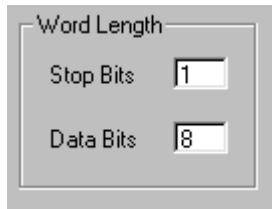


---

**Word Length Data Bits**

You can set the Word Length to 7 or 8 bits of data per character. If an application requires only ASCII hex characters 0 through 7F decimal (text, digits, and punctuation), select 7 data bits. For applications requiring use of the full ASCII set, select 8 data bits per character.

In the Communication tab of Visual Menu, type 7 or 8 in the Data Bits entry field. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

7 Data Bits



8 Data Bits\*

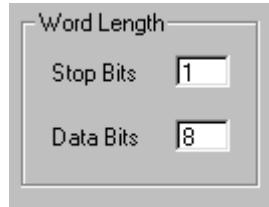


---

## Word Length Stop Bits

Word Length can be set to one or two stop bits.

In the Communication tab of Visual Menu, type 1 or 2 in the Stop Bits entry field. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

1 Stop Bit\*



2 Stop Bits

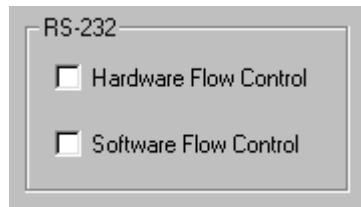


---

## Hardware Flow Control

When Hardware Flow Control is On, the software checks for a CTS signal before sending data. This option is useful when your application supports the CTS signal.

In the Communication tab of Visual Menu, choose Hardware Flow Control. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*

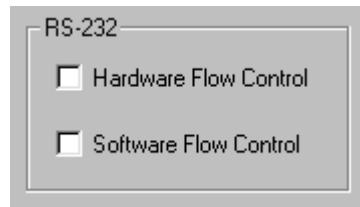


---

## **Software Flow Control**

Software Flow Control allows control of data transmission from the imager using software commands from the host device. When this feature is turned Off, no data flow control is used. When Data Flow Control is turned On, the host device suspends transmission by sending the XOFF character (DC3, hex 13) to the imager. To resume transmission, the host sends the XON character (DC1, hex 11). Data transmission continues where it left off when XOFF was sent.

In the Communication tab of Visual Menu, choose Software Flow Control. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*

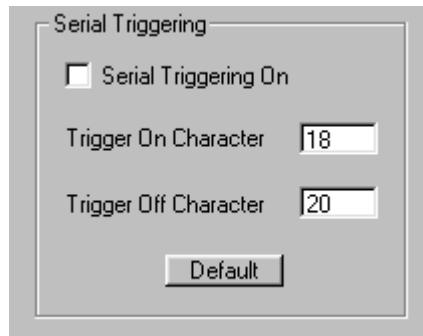


## Serial Triggering

Serial triggering provides a means of sending a serial trigger command to start and stop decoding. When this feature is turned Off, the imager will not respond to serial trigger commands. When Serial Triggering is turned On, the imager requires a serial trigger character to activate scanning and decoding. The imager continues to scan until a bar code is read, the imager times out, or a Trigger Off command is sent.

When Serial Triggering is On, the default Trigger On decimal character is 18 (hex 12, DC2), and the default Trigger Off decimal character is 20 (hex 14, DC4).

In the Communication tab of Visual Menu, choose Serial Triggering On and enter the Trigger On and Off Characters. Click Default to set Serial Triggering to the factory defaults. Click the Write Settings to Device button () to send the new setting to the imager.



On the “Decimal to Hex to ASCII Conversion Chart” later in this chapter, find the hex characters you want to use to turn the trigger on and off. Locate the decimal values for those characters and scan the 2 digits for each one from the “General Programming Chart” in Appendix B.

Scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Trigger On (see Note)

Off\*



Trigger Off (see Note)



---

### **Serial Triggering (continued)**

Trigger Defaults\*



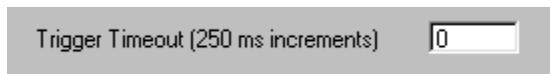
**Note:** A one to three digit decimal number and Save are required after reading this programming bar code. See “Decimal to Hex to ASCII Conversion Chart” later in this chapter and the “General Programming Chart” in Appendix B.

---

## **Trigger Timeout**

Use this selection to set a timeout (in quarter seconds) of the imager's trigger. Once the imager has timed out, it must be triggered again either serially or manually. For help with serial triggering, see “Serial Triggering” earlier in this chapter. Set the Trigger Timeout to 00 if you don't want a Trigger Timeout. The default setting is 120 seconds.

In the Communication tab of Visual Menu, enter a number from 0 to 120 in the Trigger Timeout (250 ms increments) field. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan the following bar code and then scan one to three number bar codes from the “General Programming Chart” in Appendix B.

Set Timeout

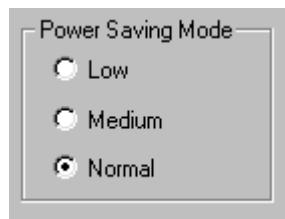


## Power Saving Mode

Power Saving mode provides control of the imager's power consumption as follows:

- Low Power draws low (50%) LED current during image capture, allowing only one read attempt for each trigger pull. The imager is less tolerant of hand movement during the read attempt and powers down after the image capture is complete.
- Medium Power draws a normal LED current during image capture, which enhances motion tolerance. Medium Power attempts to read as long as the trigger is pulled, going into a “doze” (low power) state after each read attempt. The imager powers down 10 seconds after the image capture is complete.
- Normal Power draws a normal LED current, attempting to read as long as the trigger is pulled or a decode is in process. The imager doesn't go into a “doze” state after each read attempt but may power down after 2 minutes if Power Hold Mode is turned Off.

In the Imager tab of Visual Menu, choose Low, Medium, or Normal. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Low Power



Medium Power



Normal Power\*

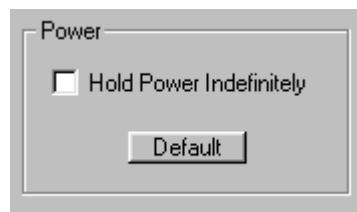


## **Power Hold Mode**

---

Power Hold On keeps the imager in a ready-to-read state. To conserve power, this selection may be turned Off, and the imager will power down if not used within 2 minutes. When you are ready to use the imager again, restore power by pressing the trigger.

In the Imager tab of Visual Menu, choose Hold Power Indefinitely. Click Default to set Power Hold mode to the factory default. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*

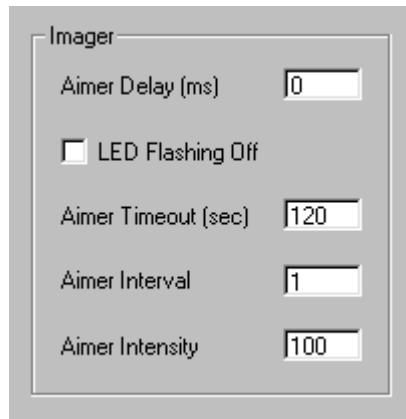


## LED Power Level

This selection allows you to adjust LED brightness.

Off is used when no illumination is needed. Low is used if low illumination is sufficient. High (the default) is the brightest setting.

In the Imager tab of Visual Menu, enter a number from 10 (lowest intensity) to 100 (highest intensity) in the Aimer Intensity field. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Off



Low



High\*

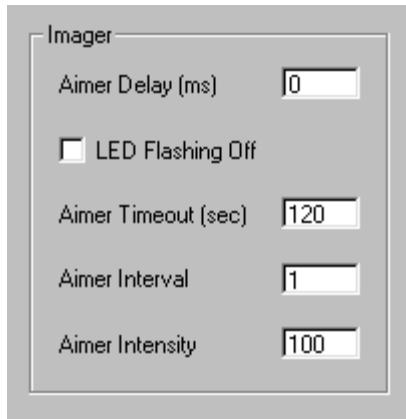


## **LED Flashing**

When LED Flashing is On, the aiming light comes on when the trigger is pressed. The aiming light stays on until a bar code is decoded or until the trigger is released.

If LED Flashing is turned Off, the average current draw is increased and the aiming light won't illuminate while the imager reads a bar code.

In the Imager tab of Visual Menu, choose LED Flashing Off. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Off



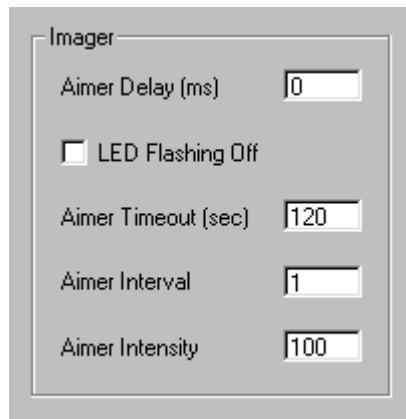
On\*



## Aimer Delay

Aimer Delay allows a delay time for the operator to aim the imager before the picture is taken. During the delay time, the aiming light will appear, but the LEDs won't turn on until the delay time is over.

In the Imager tab of Visual Menu, enter a number from 0 to 999 in the Aimer Delay (ms) field. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

200 milliseconds



400 milliseconds



Off (No Delay)\*

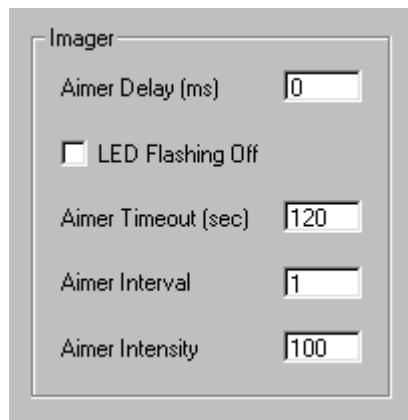


## **Aimer Interval**

---

Aimer Interval turns off the aiming light or programs the aimer to come on at certain intervals when reading bar codes with the imager. You may program the imager to use the aimer Every Read, Every Second Read, or Every Third Read. You may also program the imager to use the aimer every “x” reads, by entering a number from 0 to 999 to indicate “x.”

In the Imager tab of Visual Menu, enter a number from 0 to 999 in the Aimer Interval field. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Off



Every Read\*



Every Second Read



Every Third Read



---

**Aimer Interval (continued)**

Every “X” Reads (see Note)



**Note:** A one to three digit number and Save are required after reading this programming bar code. See the “General Programming Chart” in Appendix B.

---

**AutoTrigger**

Two AutoTrigger Modes are available: Scan Stand and Presentation Mode.

When an imager is in Scan Stand mode, the LED shines at the bar code on the base of the stand, which tells it to remain idle. To set Scan Stand mode, see “Scan Stand” later in this section. When a different code is presented, the imager is triggered to read the new code.

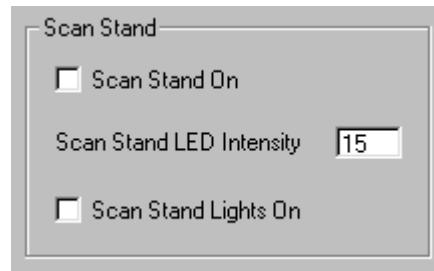
Presentation mode is for those applications where a scan stand will not work, i.e., when large packages must be scanned. To program the device for presentation mode, see “Presentation Mode” later in this section.

---

**Scan Stand**

This selection programs the imager to work in a Scan Stand.

In the Imager tab of Visual Menu, choose Scan Stand On. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Off\*



On



### ***Scan Stand Bar Code***

When an imager is in Scan Stand mode, the LED shines at the Scan Stand bar code, which is on the base of the stand. The Scan Stand bar code tells the imager to remain idle. When a bar code is presented that completely covers the Scan Stand bar code but is not the Scan Stand bar code, the imager turns on and decodes it.

Scan Stand Bar Code

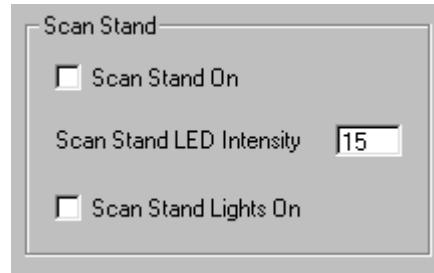


### ***Scan Stand LED Intensity***

Scan Stand LED Intensity sets the idle LED intensity when the imager is in Scan Stand mode. When an imager is in Scan Stand mode, the LED shines at the bar code on the base of the stand, which tells it to remain idle. When a different code is presented, the imager is triggered to read the new code. If the imager has difficulty going back to reading the Scan Stand's fixed code (for instance, in a low lighting situation), you may want to adjust the Scan Stand LED Intensity. A two-digit number between 15 and 75 must be input after the Scan Stand LED Intensity code is scanned. A 15 corresponds to the lowest intensity level, and a 75 corresponds to the highest intensity level. The default setting is 15.

Note that when the imager is triggered to read a code, the imager uses the LED power level specified through "LED Power Level" earlier in this chapter.

In the Imager tab of Visual Menu, enter a number between 15 (lowest intensity) and 75 (highest intensity) in the Scan Stand LED Intensity field. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan the following bar code.

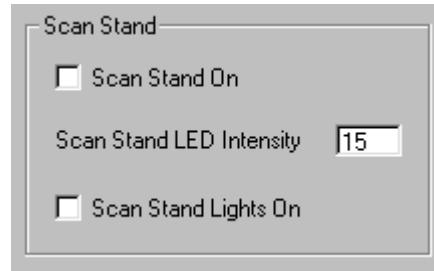
Set Scan Stand LED Intensity



### ***Scan Stand Lights***

You can turn off the imager light when the imager is in idle mode in a scan stand.

In the Imager tab of Visual Menu, choose Scan Stand Lights On. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Off

On\*

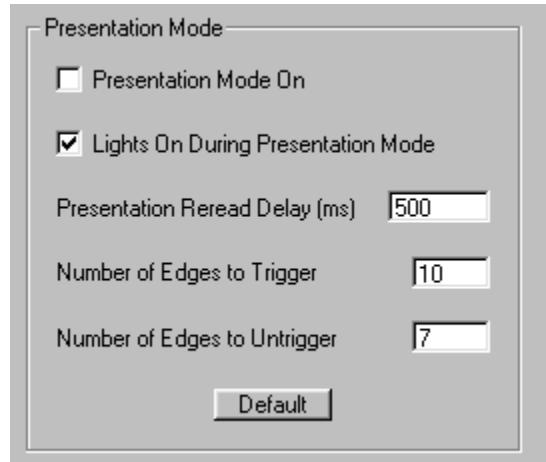


---

## **Presentation Mode**

Presentation Mode programs the imager to work in Presentation Mode.

In the Imager tab of Visual Menu, choose Presentation Mode On. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Off\*



On

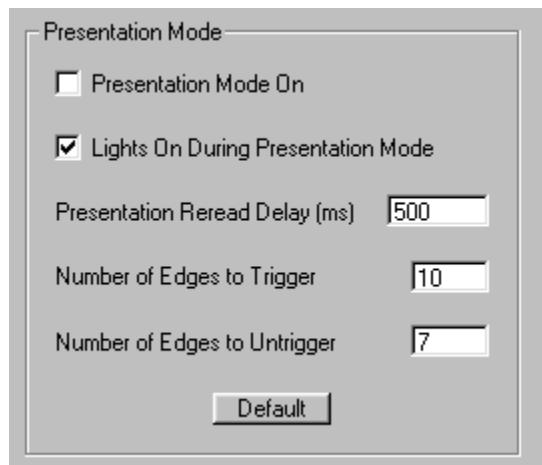


### Presentation Reread Delay

Presentation Reread Delay sets the time period before the imager can read the same bar code a second time. Setting a reread delay protects against accidental rereads of the same bar code. Longer delays are effective in minimizing accidental rereads at POS (point of sale). Use shorter delays in applications where repetitive bar code scanning is required. Entries are in milliseconds up to 10,000. The default is 500.

In the Imager tab of Visual Menu, enter a number between 0 and 10000 in the

Presentation Reread Delay (ms) field. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan the following bar code.

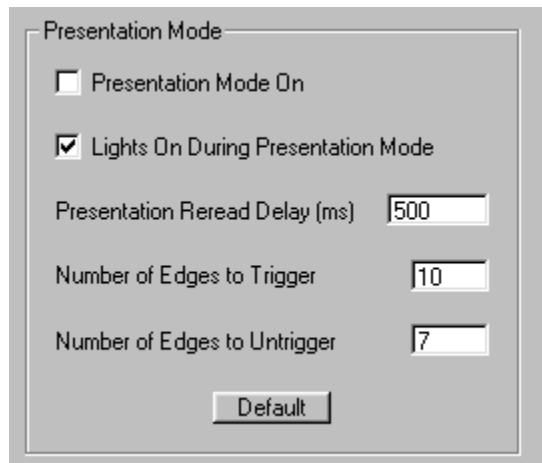
Presentation Reread Delay



### **Presentation Lights**

When using the imager in presentation mode, the illuminating LEDs can be programmed on or off. If there is sufficient ambient light, the LEDs can be turned off by scanning the Lights Off bar code below. When a bar code is presented to the imager, the illuminating LEDs turn on to scan the bar code, and then turn off when the bar code has been read.

In the Imager tab of Visual Menu, choose Lights On During Presentation Mode. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



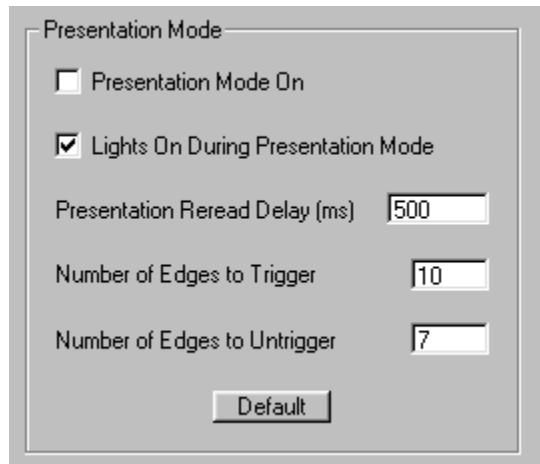
Off



### Presentation Default

Defaults all presentation mode settings. The defaults are Presentation Mode Off and Presentation Reread Delay 500 ms (1/2 sec.).

In the Imager tab of Visual Menu, click Default under Presentation Mode. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan the following bar code.

Presentation Default



## Setting the Beeper

Use this section to set the beeper to factory defaults or to set the following beeper features:

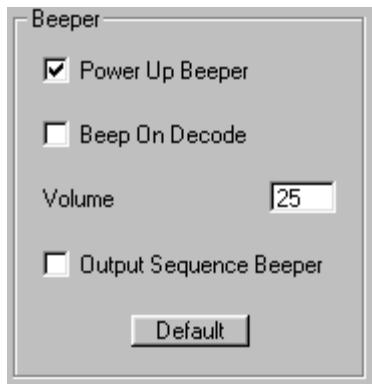
- Beeper volume
- Power up beeper
- Output Sequence Beeper
- Beep on decode

---

## **Beeper Default**

Defaults all beeper settings. The defaults are Beeper Volume High, Power Up Beeper On, Output Sequence Beeper On, Beep On Decode On.

In the Output tab of Visual Menu, click Default under Beeper. Click the Write Settings to Device button () to send the new setting to the imager.



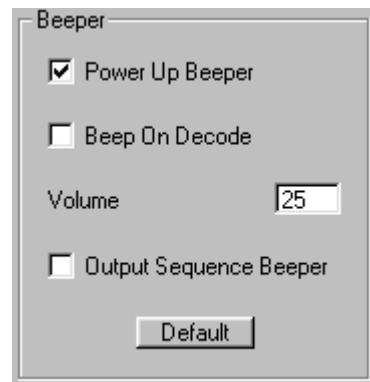
Or scan the following bar code.

Beeper Default



## Beeper Volume

In the Output tab of Visual Menu, enter a number between 0 (no beep) and 50 (loudest beep) in the Volume field. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Off



Low



Medium



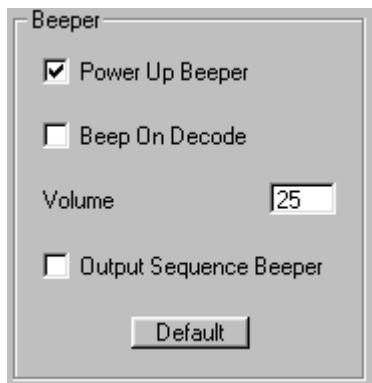
High\*



---

## **Power Up Beeper**

In the Output tab of Visual Menu, choose Power Up Beeper. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



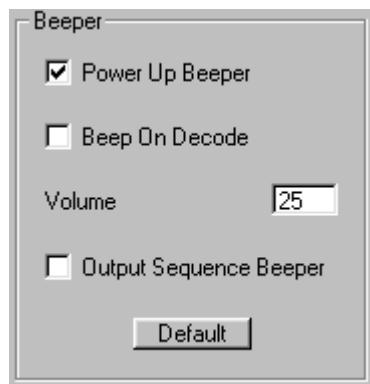
Off



## ***Output Sequence Beeper***

If you are using an Output Sequence, you may want to hear a beep after each bar code as it is read. For more information on Output Sequence, see “Output Sequence Overview” later in this chapter.

In the Output tab of Visual Menu, choose Output Sequence Beeper. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan Output Sequence Beeper On to enable this feature, or scan Output Sequence Beeper Off to disable it. The default setting is marked with an asterisk (\*).

On\*



Off

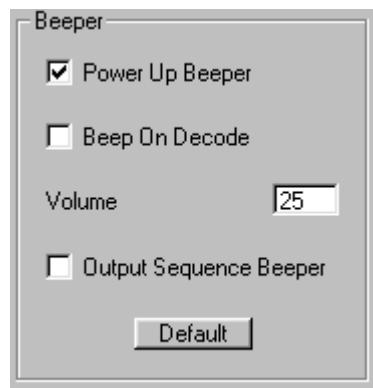


---

### **Beep On Decode**

If you want the imager to beep each time it reads a bar code, leave this setting On. If you don't want it to beep on each read, but do want it to beep for other events (such as error conditions), set this selection to Off.

In the Output tab of Visual Menu, choose Beep On Decode. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



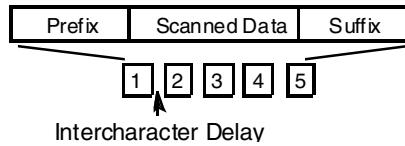
## Intercharacter, Interfunction, and Intermassage Delays

Some terminals drop information (characters) if data comes through too quickly. Intercharacter, interfunction, and intermessage delays slow the transmission of data, which increases data integrity.

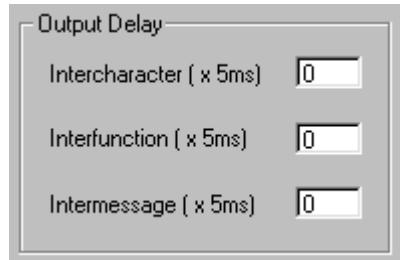
Each delay is composed of a 5-millisecond step. You can program up to 99 steps (of 5 ms each).

### Intercharacter Delay

Intercharacter Delay is a delay of up to 495 milliseconds (in multiples of 5) placed between the transmission of each character of scanned data. You can program up to 99 steps (of 5 ms each).



In the Output tab of Visual Menu, enter a value from 0 to 99 in the Intercharacter (x 5ms) field. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan the Intercharacter Delay bar code below, then scan the number of steps and the Save bar code from the “General Programming Chart” in Appendix B.



**Note:** If you make an error while scanning the digits (before scanning Save), scan Discard in the “General Programming Chart” in Appendix B, and then scan the correct digits and Save again.

#### Intercharacter Delay

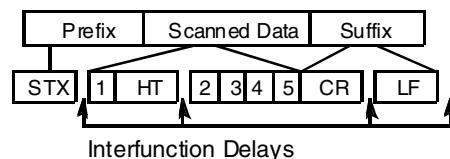


To remove this delay, scan the Intercharacter Delay bar code, then set the number of steps to 00. Scan the Save bar code from the “General Programming Chart” in Appendix B.

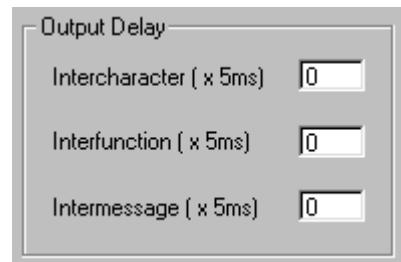
---

### **Interfunction Delay**

This is a delay of up to 495 milliseconds (in multiples of 5) placed between the transmission of each segment of the message string. You can program up to 99 steps (of 5 ms each).



In the Output tab of Visual Menu, enter a value from 0 to 99 in the Interfunction (x 5ms) field. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan the Interfunction Delay bar code below, then scan the number of steps and the Save bar code from the “General Programming Chart” in Appendix B.



**Note:** If you make an error while scanning the digits (before scanning Save), scan Discard in the “General Programming Chart” in Appendix B, and then scan the correct digits and Save again.

#### Interfunction Delay

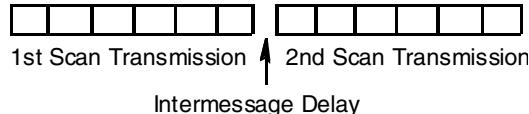


To remove this delay, scan the Interfunction Delay bar code, then set the number of steps to 00. Scan the Save bar code from the “General Programming Chart” in Appendix B.

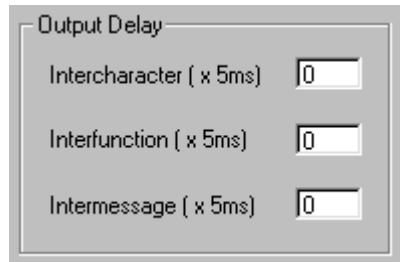
---

#### **Intermessage Delay**

This is a delay of up to 495 milliseconds (in multiples of 5) placed between each scan transmission. You can program up to 99 steps (of 5 ms each).



In the Output tab of Visual Menu, enter a value from 0 to 99 in the IntermESSAGE (x 5ms) field. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan the Intermessage Delay bar code below, then scan the number of steps and the Save bar code from the “General Programming Chart” in Appendix B.



**Note:** If you make an error while scanning the digits (before scanning Save), scan Discard in the “General Programming Chart” in Appendix B, and then scan the correct digits and Save again.

Intermessage Delay



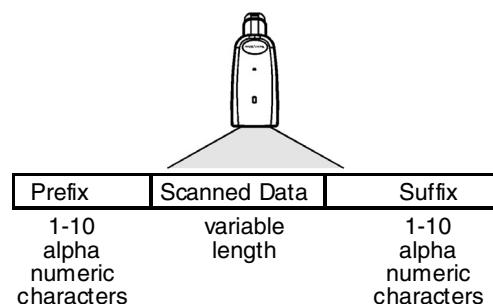
To remove this delay, scan the Intermessage Delay bar code, then set the number of steps to 00. Scan the Save bar code from the “General Programming Chart” in Appendix B.

## ***Prefix/Suffix Overview***

---

When a bar code is scanned, additional information is sent to the host computer along with the bar code data. This group of bar code data and additional, user-defined data is called a “message string.” The selections in this section are used to build the user-defined data into the message string.

Prefix and Suffix characters are data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies or only with specific symbologies. The following illustration shows the breakdown of a message string.



## Points to Keep In Mind

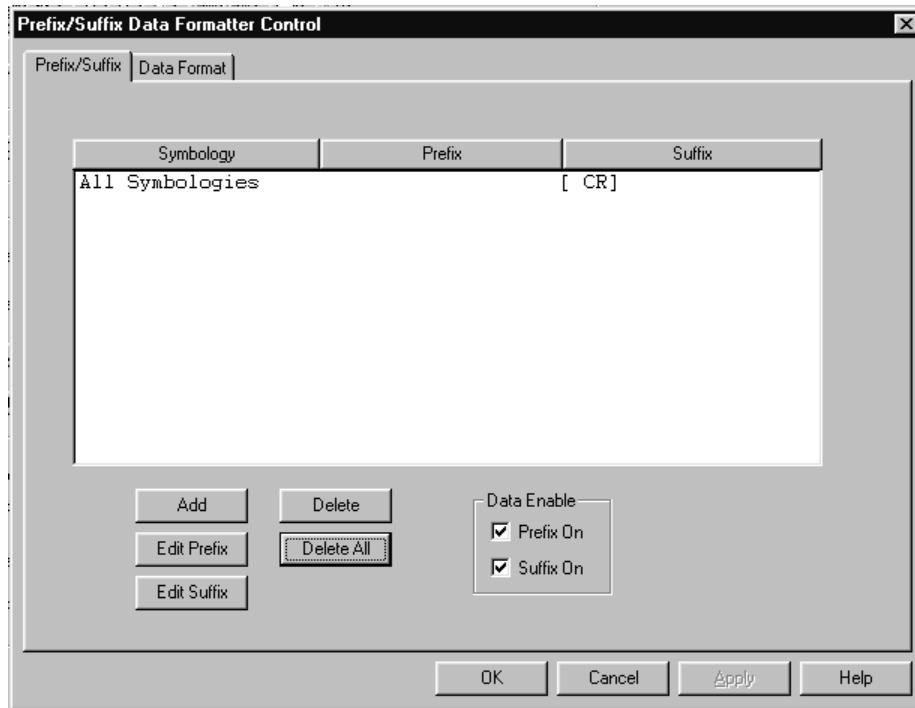
- It is not necessary to build a message string. The selections in this chapter are only used if you wish to alter the default settings. The default prefix is None. The default suffix is CR/LF.
- A prefix or suffix may be added or cleared from one symbology or all symbologies.
- You can add any prefix or suffix from the “Decimal to Hex to ASCII Conversion Chart” later in this chapter, plus Code I.D. and Aim I.D.
- You can string together several entries for several symbologies at one time.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

## Adding a Prefix or Suffix

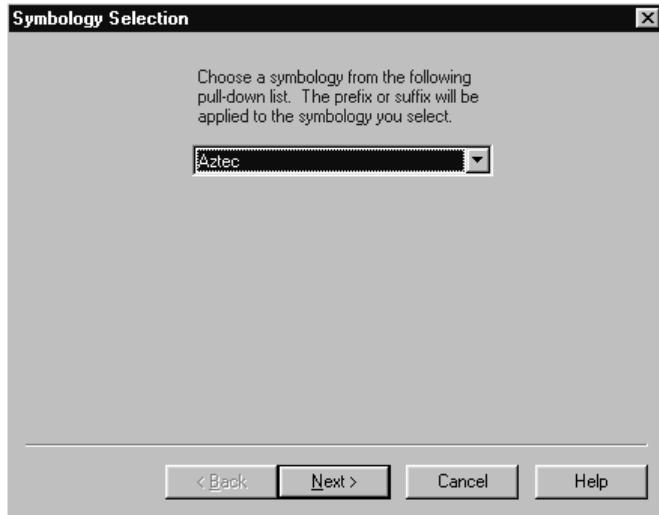
You can add a prefix or suffix using Visual Menu or bar codes.

### To add a prefix or suffix using Visual Menu

1. Start Visual Menu.
2. Click the Data Formatting button (abc). The Prefix/Suffix Data Formatter Control dialog box appears.



3. Click Add and follow the instructions in the wizard to add a prefix or suffix to a specific symbology.



To add a prefix to all symbologies, select All Symbologies from the list box and click Edit Prefix.

To edit the suffix for all symbologies, select All Symbologies from the list box and click Edit Suffix.

4. Select Prefix On and Suffix On.
5. Click OK.
6. Click the Write Settings to Device button ().

#### **To add a prefix or suffix using bar codes**

1. Scan the Add Prefix or Add Suffix bar code.

Add Prefix



Add Suffix



2. Determine the 2-digit hex value from the "Symbology Chart" later in this chapter for the symbology to which you want to apply the prefix or suffix.
3. Scan the 2 hex digits from the "General Programming Chart" in Appendix B or scan 9, 9 for all symbologies.

4. Determine the hex value from the “Decimal to Hex to ASCII Conversion Chart” later in this chapter for the prefix or suffix you wish to enter.
5. Scan the 2-digit hex value from the “General Programming Chart” in Appendix B. Repeat Steps 4 and 5 for every prefix or suffix character.  
To add the Code I.D., scan 5, C, 8, 0.  
To add AIM I.D., scan 5, C, 8, 1.  
To add a backslash (\), scan 5, C, 5, C.
6. Scan Save to exit and save, or scan Discard to exit without saving.
7. Repeat Steps 1-6 to add a prefix or suffix for another symbology.

***Example***

Add a Suffix to a specific symbology using Visual Menu.

**To send a CR (carriage return) Suffix for UPC only**

1. Start Visual Menu.
2. Click the Data Formatting button. The Prefix/Suffix Data Formatter Control dialog box appears.
2. Click Add.
3. Select UPC from the drop down list and click Next.
4. Select Suffix and click Next.
5. Click Control Characters, double-click CR (carriage return), and click OK.
6. Click Finish and click OK.
7. Click the Write Settings to Device button.

***Clearing One or All Prefixes or Suffixes***

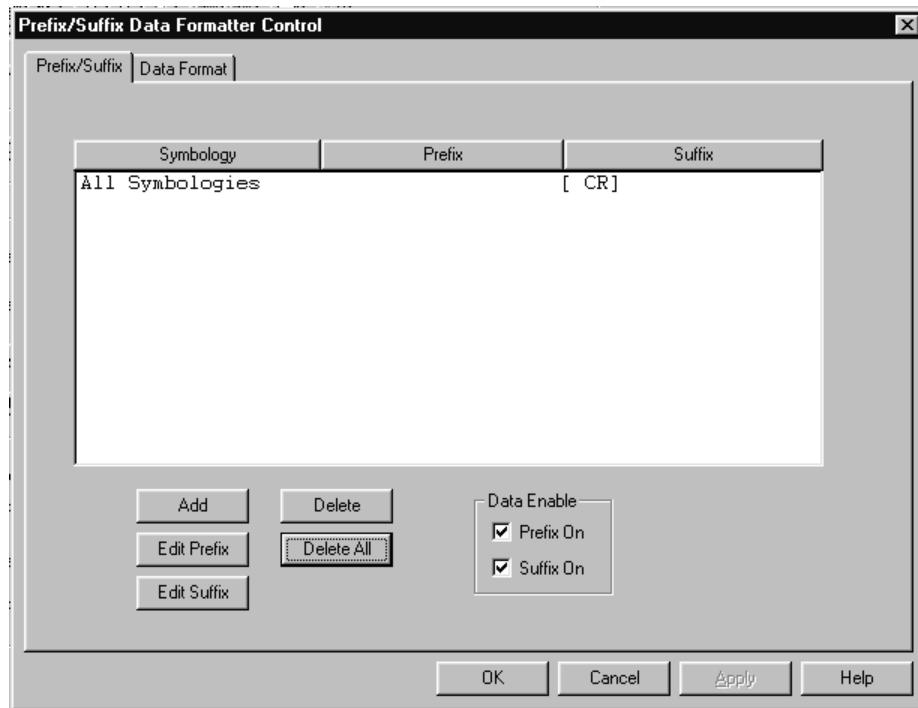
You can clear a single prefix or suffix, or clear all prefixes/suffixes for a symbology. When you Clear One Prefix (Suffix), the specific character you select is deleted from the symbology you want. When you Clear All Prefixes (Suffixes), all the prefixes or suffixes for a symbology are deleted.

**To clear one or all prefixes or suffixes using Visual Menu**

1. Start Visual Menu.
2. Click the Data Formatting button (). The Prefix/Suffix Data Formatter Control dialog box appears.

---

**Prefix/Suffix Data Formatter Control Dialog Box**



3. To clear one prefix or suffix from a symbology, select the symbology and click Delete, Edit Prefix, or Edit Suffix.  
To clear all prefixes and suffixes, select All Symbologies and click Delete, Edit Prefix, or Edit Suffix.
4. Click OK.
5. Click the Write Settings to Device button ().

**To clear one prefix using bar codes**

1. Scan the Clear One Prefix bar code.

Clear One Prefix



2. Determine the 2-digit hex value from the "Symbology Chart" later in this chapter for the symbology from which you want to clear the prefix or suffix.

3. Scan the 2-digit hex value from the “General Programming Chart” in Appendix B or scan 9, 9 for all symbologies.

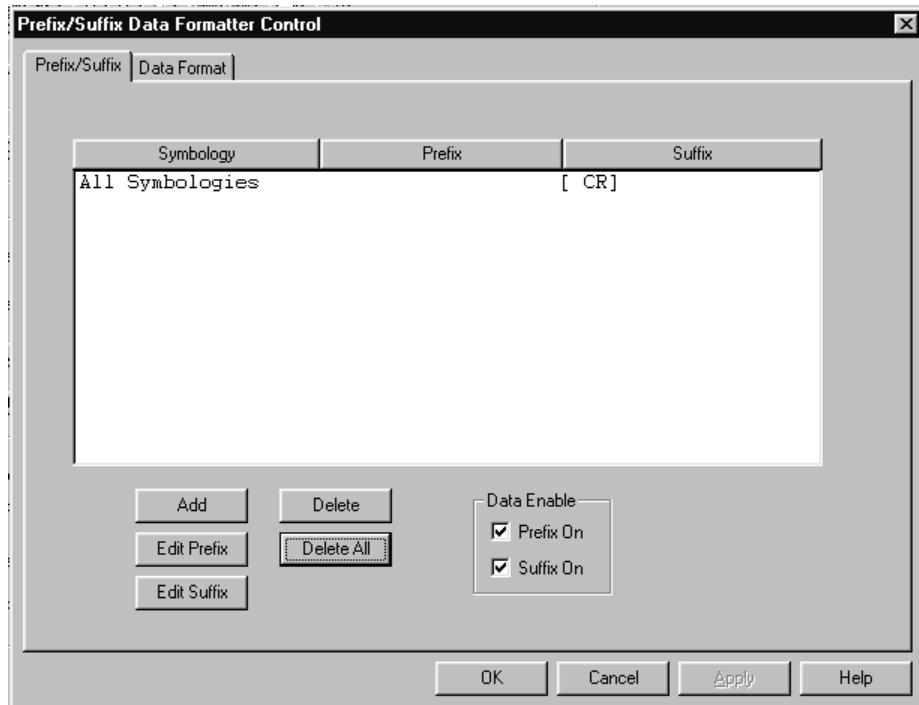
Your change is automatically saved.

## Add a Carriage Return Suffix to All Symbologies

You can add a carriage return suffix to all symbologies using Visual Menu or bar codes.

### To add a CR suffix using Visual Menu

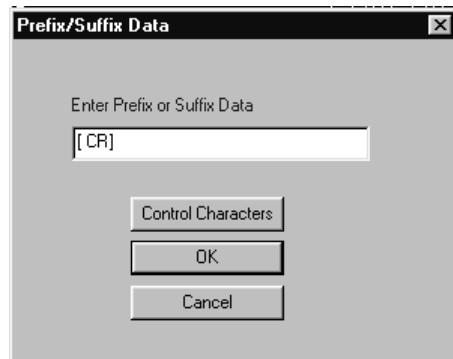
1. Start Visual Menu.
2. Click the Data Formatting button (abc). The Prefix/Suffix Data Formatter Control dialog box appears.



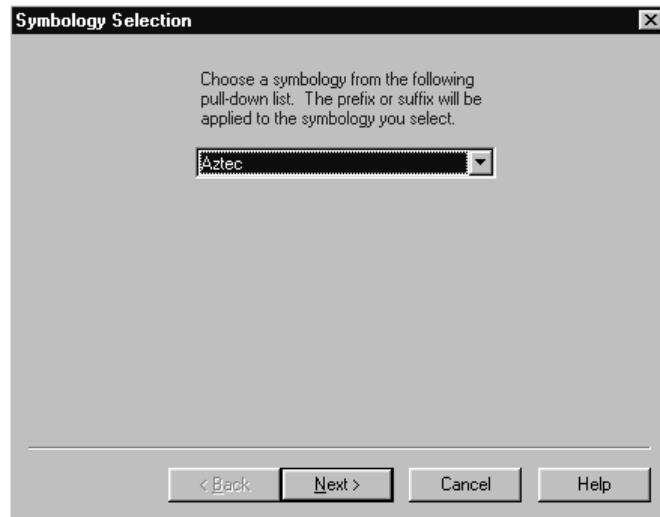
3. If All Symbologies appears in the list box, select All Symbologies, click Edit Suffix. From the Prefix/Suffix Data dialog box, click Control Characters, select CR, and click OK.

---

**Prefix/Suffix Data Dialog Box**



If All Symbolologies does not appear in the list box, click Add and follow the instructions in the wizard.



4. Select Suffix On.
5. Click OK.
6. Click the Write Settings to Device button (  ).

**To add a CR suffix using bar codes**

- Scan the following bar code if you wish to add a Carriage Return Suffix to all symbologies at once. This action first clears all current suffixes, then programs a carriage return suffix for all symbologies.

Add CR Suffix to All Symbologies



---

**Add a Code I.D. Prefix to All Symbologies**

This selection allows you to turn on (or off) transmission of a Code I.D. before the decoded symbology. (For the single character code that identifies each symbology, see the “Symbology Chart” later in this chapter.) This action first clears all current prefixes, then programs a Code I.D. prefix for all symbologies.

Add Code ID Prefix to All Symbologies



---

**Add an AIM I.D. Prefix to All Symbologies**

This selection allows you to turn on (or off) transmission of an AIM I.D. before the decoded symbology. For the single character code that identifies each symbology, see the “Symbology Chart” later in this chapter. This action first clears all current prefixes, then programs an AIM I.D. prefix for all symbologies.

Add AIM ID Prefix to All Symbologies



---

## **Prefix Entries Bar Codes**

The default setting is no prefix.

Add Prefix (see Note)



Clear One Prefix (see Note)



Clear All Prefixes



**Note:** One or more two digit numbers and Save are required after reading this programming bar code. See the "General Programming Chart" in Appendix B.

---

## **Suffix Entries**

The default setting is CR/LF.

Add Suffix (see Note)



Clear One Suffix (see Note)



Clear All Suffix



**Note:** One or more two digit numbers and Save are required after reading this programming bar code. See the "General Programming Chart" in Appendix B.

***Exit Selections***

Save

Discard

***Symbology Chart***

<b>Symbology</b>	<b>Code ID</b>	<b>AIM ID</b>	<b>Hex ID</b>
Australian 4 State	A	[X	41
Aztec Code	z	[z	7A
BC412**	g	[X	67
BPO 4 State	B	[X	42
Canadian 4 State	C	[X	43
Codabar	a	[F	61
Codablock-F	q	[O	71
Code 11	h	]H0	68
Code 39	b	[A	62
Code 49	l	[T	6C
Code 93	i	[G	69
Code 128	j	[C	6A
Code Z**	u	[X	75
Data Matrix	w	[d	77
EAN	d	[E	64
IATA 2 of 5	f	[R	66
Interleaved 2 of 5	e	[l	65
Japanese Postal	J	[X	4A
Kix (Dutch) Postal	K	[X	4B
Maxicode	x	[U	78
Micro PDF 417	R	[L	52
MSI	g	]M0	67
No Read			9C
OCR	o	[Y	6F
PDF 417	r	[L	72
Planet Code	L	[X	4C

---

**Symbology Chart (continued)**

<b>Symbology</b>	<b>Code ID</b>	<b>AIM ID</b>	<b>Hex ID</b>
Postnet	P	[X	50
QR Code	s	[Q	73
RSS/Composites	y	[e	79
UPC	c	[E	63
Vericode**	v	[V	76
All Symbologies***			99



**Note:** Prefix / Suffix entries for specific symbologies override the universal (All Symbologies, 99) entry.

\*\* Not available in standard product. Only available when ordered in custom firmware

\*\*\* All Symbologies: Prefix / Suffix programming only!

---

**Decimal to Hex to ASCII Conversion Chart**

<b>Dec.</b>	<b>Hex</b>	<b>ASCII</b>									
0	00	NUL	32	20	SP	64	40	@	96	60	'
1	01	SOH	33	21	!	65	41	A	97	61	a
2	02	STX	34	22	"	66	42	B	98	62	b
3	03	ETX	35	23	#	67	43	C	99	63	c
4	04	EOT	36	24	\$	68	44	D	100	64	d
5	05	ENQ	37	25	%	69	45	E	101	65	e
6	06	ACK	38	26	&	70	46	F	102	66	f
7	07	BEL	39	27	'	71	47	G	103	67	g
8	08	BS	40	28	(	72	48	H	104	68	h
9	09	HT	41	29	)	73	49	I	105	69	i
10	0A	LF	42	2A	*	74	4A	J	106	6A	j
11	0B	VT	43	2B	+	75	4B	K	107	6B	k
12	0C	FF	44	2C	,	76	4C	L	108	6C	l
13	0D	CR	45	2D	-	77	4D	M	109	6D	m
14	0E	SO	46	2E	.	78	4E	N	110	6E	n
15	0F	SI	47	2F	/	79	4F	O	111	6F	o

***Decimal to Hex to ASCII Conversion Chart (continued)***

<b>Dec.</b>	<b>Hex</b>	<b>ASCII</b>									
16	10	DLE	48	30	0	80	50	P	112	70	p
17	11	DC1	49	31	1	81	51	Q	113	71	q
18	12	DC2	50	32	2	82	52	R	114	72	r
19	13	DC3	51	33	3	83	53	S	115	73	s
20	14	DC4	52	34	4	84	54	T	116	74	t
21	15	NAK	53	35	5	85	55	U	117	75	u
22	16	SYN	54	36	6	86	56	V	118	76	v
23	17	ETB	55	37	7	87	57	W	119	77	w
24	18	CAN	56	38	8	88	58	X	120	78	x
25	19	EM	57	39	9	89	59	Y	121	79	y
26	1A	SUB	58	3A	:	90	5A	Z	122	7A	z
27	1B	ESC	59	3B	;	91	5B	[	123	7B	{
28	1C	FS	60	3C	<	92	5C	\	124	7C	
29	1D	GS	61	3D	=	93	5D	]	125	7D	}
30	1E	RS	62	3E	>	94	5E	^	126	7E	~
31	1F	US	63	3F	?	95	5F	_	127	7F	DEL

***Data Format Editor Overview***

The Data Format Editor selections are used to edit scanned data. For example, you can use the Data Format Editor to insert characters at certain points in bar code data as it is scanned.

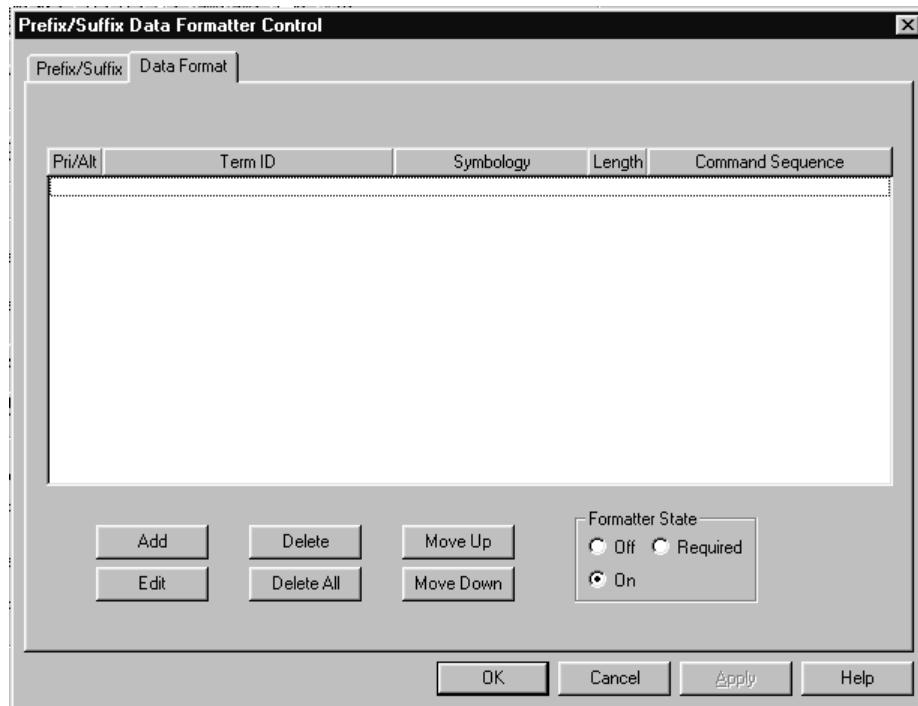
It is not necessary to use the Data Format Editor. A set of defaults for the data format is already programmed in the imager. The selections in the following pages are used only if you wish to alter the default settings. The default Data Format setting is none.

**To clear all data formats using Visual Menu**

1. Start Visual Menu.
2. Click the Data Formatting button (). From the Prefix/Suffix Data Formatter Control dialog box, select the Data Format tab.

---

### **Data Format Tab**



3. Click Delete All and then click OK.
4. Click the Write Settings to Device button ().

#### **To clear all data formats using bar codes**

- Scan the following bar code:

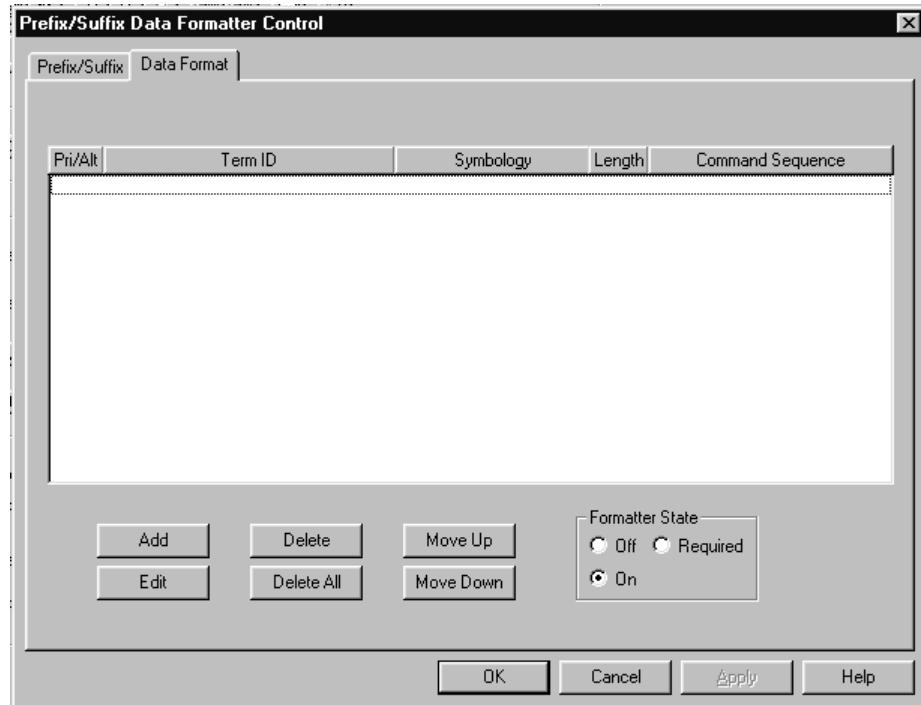
Default Data Format (None)\*



**To add a data format using Visual Menu**

1. Start Visual Menu.

2. Click the Data Formatting button (ABC). From the Prefix/Suffix Data Formatter Control dialog box, select the Data Format tab.



3. Click Add and follow the instructions through the wizard.

4. Click OK.

5. Click the Write Settings to Device button (F).

**To add a data format using bar codes**

1. Scan the Enter Data Format bar code.

Enter Data Format



**2. Primary/Alternate Format**

Determine if this will be your primary data format, or one of 3 alternate formats. (Alternate formats allow you “single shot” capability to scan one bar code using a different data format. After the one bar code has been read, the imager reverts to the primary data format. For more information, see “Alternate Data Formats” later in this chapter.) If you are programming the primary format, scan 0. If you are programming an alternate format, scan 1, 2, or 3, depending on the alternate format you are programming.

**3. Terminal Type**

Refer to the “Supported Terminals Chart” earlier in this chapter and locate the Terminal ID number for your PC. Scan three numeric bar codes on the “General Programming Chart” in Appendix B to program the imager for your terminal ID (you must enter 3 digits). For example, scan 0 0 3 for an AT wedge.

**4. Code I.D.**

From the “Symbology Chart” earlier in this chapter, find the symbology to which you want to apply the data format. Locate the hex value for that symbology and scan the 2-digit hex value from the “General Programming Chart” in Appendix B.

**5. Length**

Specify what length (up to 9999 characters) of data will be acceptable for this symbology. Scan the four digit data length from the “General Programming Chart” in Appendix B.



**Note:** A length of 50 characters is entered as 0050. The number 9999 is a universal number, indicating all lengths.

**6. Editor Commands**

Refer to the “Format Editor Commands” later in this chapter. Scan the bar codes that represent the command you want to enter. You can enter 94 alphanumeric characters for each symbology data format.

**7. Scan Save to save your entries.**

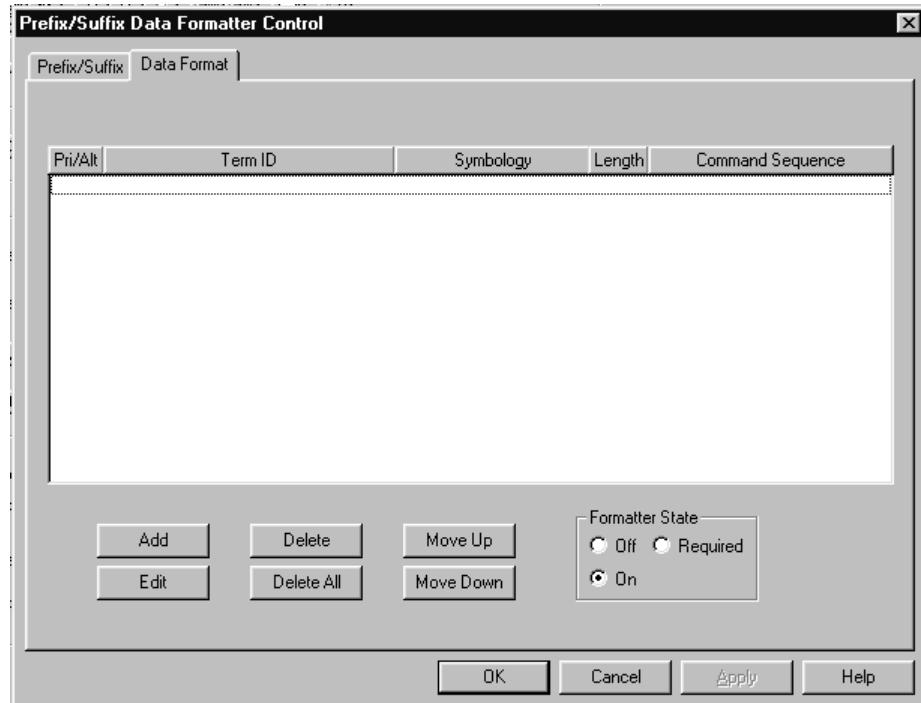
Save



**To clear or change one data format using Visual Menu**

1. Start Visual Menu.

2. Click the Data Formatting button (ABC). From the Prefix/Suffix Data Formatter Control dialog box, select the Data Format tab.



3. To clear a data format, select the data format you want from the list box and click Delete.

To change a data format, select the data format you want from the list box, click Edit, and follow the instructions through the wizard.

4. Click OK.

5. Click the Write Settings to Device button (USB).

**To clear one data format using bar codes.**

1. Scan the Clear One Data Format bar code. This deletes one data format for one symbology. If you are clearing the primary format, scan 0. If you are clearing an alternate format, scan 1, 2, or 3, depending on the alternate format you are clearing.

Clear One Data Format



2. Scan the Terminal Type, Code I.D., and the length of the format you want to delete. To find your terminal type, see the "Supported Terminals Chart" earlier in this chapter. The length of the data format for that symbology is deleted and all other formats are unaffected.
3. Scan Save or Discard.

Save



Discard



---

## **Format Editor Commands**

This section explains the following commands:

- Send commands
- Move commands
- Search commands
- Miscellaneous commands

### **Send Commands**

- F1 Send all characters followed by "xx" key or function code, starting from current cursor position. Syntax = F1xx (where xx stands for the hex value for an ASCII code, see "Decimal to Hex to ASCII Conversion Chart" earlier in this chapter).
- F2 Send "nn" characters followed by "xx" key or function code, starting from current cursor position. Syntax = F2nnxx (where nn stands for the numeric value [00-99] for the number of characters and xx stands for the hex value for an ASCII code; see "Decimal to Hex to ASCII Conversion Chart" earlier in this chapter).

- F3 Send up to but not including “ss” character (Search and Send) starting from current cursor position, leaving cursor pointing to “ss” character followed by “xx” key or function code. Syntax = F3 ssxx (where ss and xx both stand for the hex values for ASCII codes, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter).
- F4 Send “xx” character “nn” times (Insert) leaving cursor in current cursor position. Syntax = F4 xxnn (where xx stands for the hex value for an ASCII code, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter, and nn is the numeric value [00-99] for the number of times it should be sent).
- E9 Send all but the last “nn” characters, starting from the current cursor position. Syntax = E9nn (where nn is the numeric value [00-99] for the number of characters that will not be sent at the end of the message).

### **Move Commands**

- F5 Move the cursor ahead “nn” characters from current cursor position. Syntax = F5nn (where nn stands for the numeric value [00-99] for the number of characters the cursor should be moved ahead).
- F6 Move the cursor back “nn” characters from current cursor position. Syntax = F6nn (where nn stands for the numeric value [00-99] for the number of characters the cursor should be moved back).
- F7 Move the cursor to the beginning of the data string. Syntax = F7.
- EA Move the cursor to the end of the data string. Syntax = EA

### **Search Commands**

- F8 Search ahead for “xx” character from current cursor position, leaving cursor pointing to “xx” character. Syntax = F8xx (where xx stands for the hex value for an ASCII code, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter).
- F9 Search back for “xx” character from current cursor position, leaving cursor pointing to “xx” character. Syntax = F9xx (where xx stands for the hex value for an ASCII code, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter).
- E6 Search ahead for the first non “xx” character from the current cursor position, leaving cursor pointing to non ”xx” character. Syntax = E6xx (where xx stands for the hex value for an ASCII code, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter).
- E7 Search back for the first non “xx” character from the current cursor position, leaving cursor pointing to non ”xx” character. Syntax = E7xx (where xx stands for the hex value for an ASCII code, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter).

### **Miscellaneous Commands**

- FB Suppress all occurrences of up to 15 different characters, starting at the current cursor position, as the cursor is advanced by other commands. When the FC command is encountered, the suppress function is terminated. The cursor is not moved by the FB command. Syntax = FB $nn$ xx $yy \dots zz$  where  $nn$  is a count of the number suppress characters in the list and  $xx \dots zz$  is the list of characters to be suppressed. (where  $xx$  stands for the hex value for an ASCII code, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter.)
- FC Disable suppress filter and clear all suppressed characters. Syntax = FC.
- E4 Replaces up to 15 characters in the data string with user specified characters. Replacement continues until the E5 command is encountered. Syntax = E4 $nn$ xx $1xx2yy1yy2 \dots zz1zz2$  where  $nn$  is the total count of both characters to be replaced plus replacement characters;  $xx1$  defines characters to be replaced and  $xx2$  defines replacement characters, continuing through  $zz1$  and  $zz2$ .
- E5 Terminates character replacement. Syntax = E5.
- FE Compare character in current cursor position to the character “xx.” If characters are equal, increment cursor. If characters are not equal, no format match. Syntax = FE $xx$  (where  $xx$  stands for the hex value for an ASCII code, see “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter).
- EC Check to make sure there is an ASCII number at the current cursor position. If character is not numeric, format is aborted. Syntax = EC.
- ED Check to make sure there is a non-numeric ASCII character at the current cursor position. If character is numeric, format is aborted. Syntax = ED.

---

**Data Format Editor Bar Codes**

Enter Data Format (see Note)



Default Data Format (None)\*



Clear One Data Format



Clear All Data Formats



**Note:** One or more two digit numbers and Save are required after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

---

**Exit Selections Bar Codes**

Save Current Data Format Changes



Discard Current Data Format Changes



---

**Data Formatter**

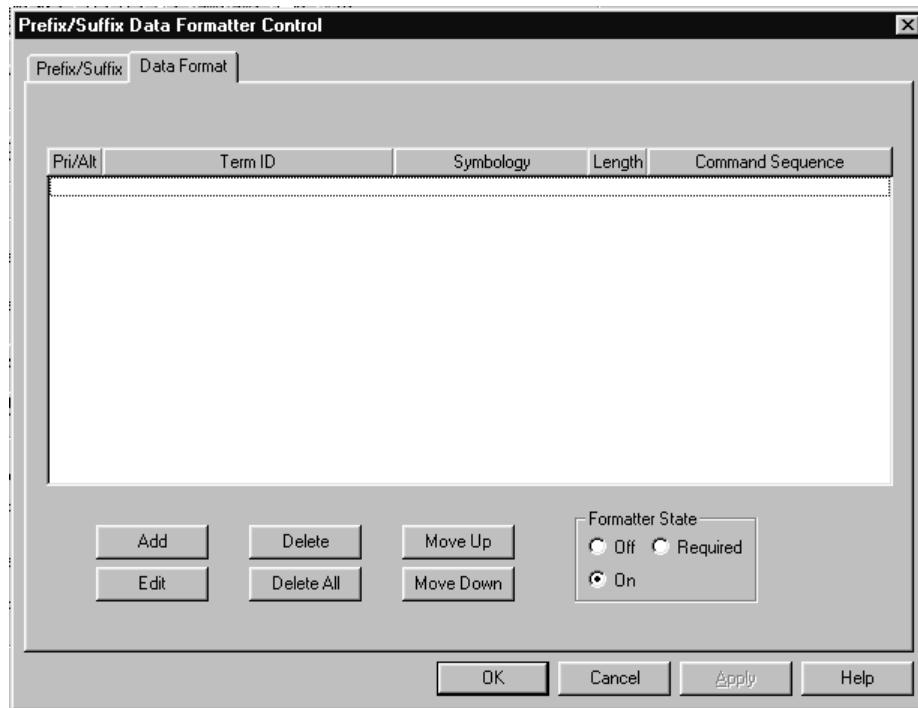
When Data Formatter is turned off, the bar code data is output to the host as read (including prefixes and suffixes).

**To set the Data Formatter using Visual Menu**

1. Start Visual Menu.
2. Click the Data Formatting button (). From the Prefix/Suffix Data Formatter Control dialog box, select the Data Format tab.

---

**Prefix/Suffix Data Formatter Control Dialog Box**



3. Under Formatter State, select either Off or On.
4. Click OK.
5. Click the Write Settings to Device button (✉).

**To set Data Formatter using bar codes.**

- Scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off

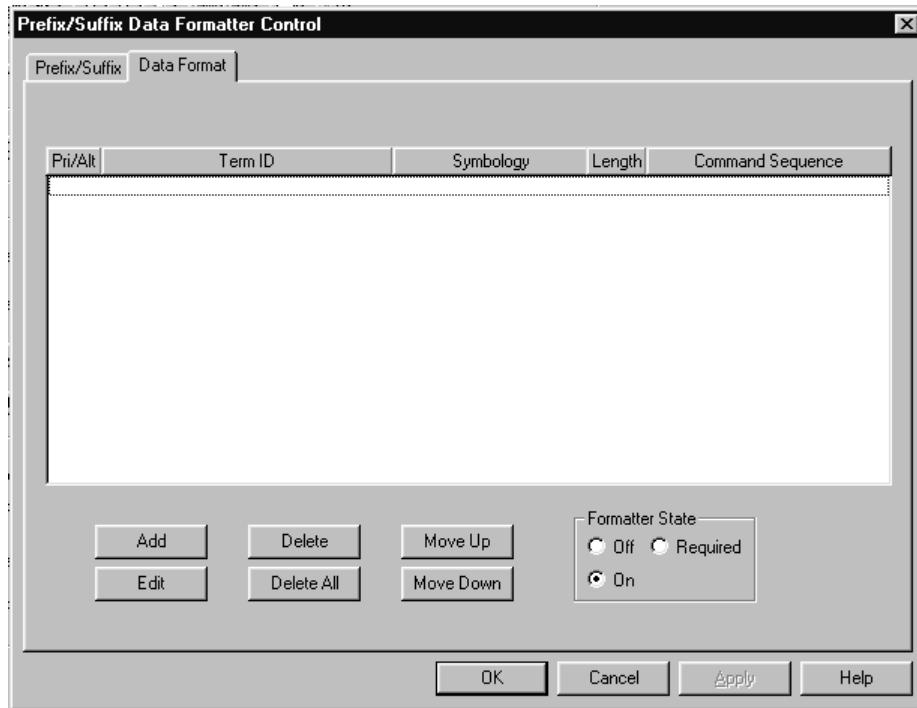


## Require Data Format

When Data Formatter is Required, all input data must conform to an edited format or the imager does not transmit the input data to the host device.

### To set Data Formatter to Required using Visual Menu

1. Start Visual Menu.
2. Click the Data Formatting button (  ). From the Prefix/Suffix Data Formatter Control dialog box, select the Data Format tab.



3. Under Formatter State, select Required.
4. Click OK.
5. Click the Write Settings to Device button (  ).

### **To set Data Formatter to Required using bar codes**

- Scan the following bar code.

Required



---

### **Show Data Formats**

Visual Menu displays the data formats of the connected device.

Read the Show Data Formats bar code to transmit the existing data formats. One format per line is printed out.

Show Data Formats



---

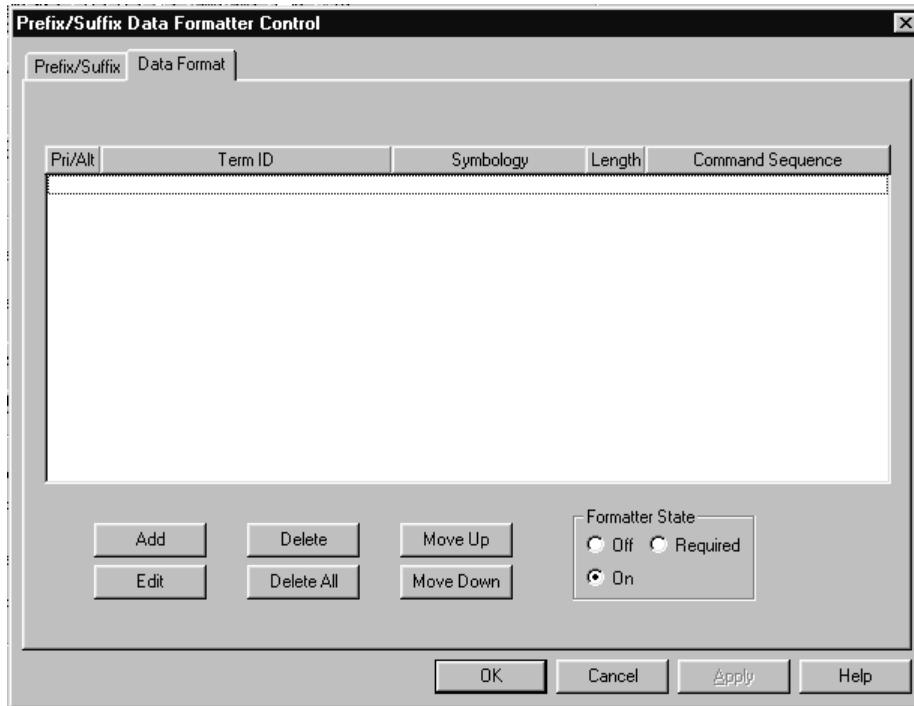
### **Alternate Data Formats**

Alternate formats allow you “single shot” capability to scan one bar code using a different data format than your primary format. When data formats are programmed, you must input whether you are programming the primary format, or an alternate format numbered 1, 2, or 3.

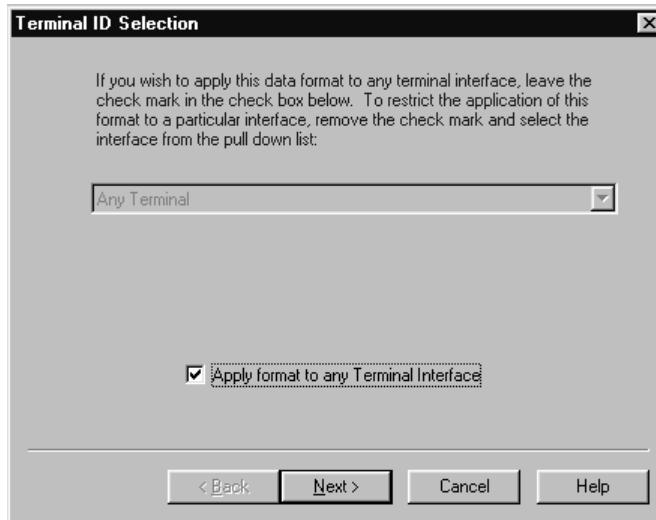
When an alternate data format is initiated, the imager will scan the next bar code, formatting the data with the selected alternate format, then revert immediately to the primary format.

### **To add an alternate data format using Visual Menu**

1. Start Visual Menu.
2. Click the Data Formatting button (). From the Prefix/Suffix Data Formatter Control dialog box, select the Data Format tab.

**Prefix/Suffix Data Formatter Control Dialog Box**

3. Click Add.



4. Choose the terminal interface you are using and click Next.
5. Choose the symbology for the alternate format and click Next.

6. Enter the length of the code for the alternate format and click Next.
7. Choose Alternate 1, Alternate 2, or Alternate 3 and click Next.
8. Click Select Command, choose a command and enter any required information, click OK, and click Finish.
9. Click OK.
10. Click the Write Settings to Device button (  ).

#### **To initiate alternate data formats using bar codes**

- Scan one of the following bar codes.

Alternate Data Format 1



Alternate Data Format 2



Alternate Data Format 3



## **Output Sequence Overview**

---

When you turn off Required Output Sequence, the bar code data will be output to the host as the imager decodes it. When you turn on Required Output Sequence, all output data must conform to an edited sequence or the imager will not transmit the output data to the host device.



**Note:** This selection is unavailable when the Multiple Bar Codes Selection is turned on.

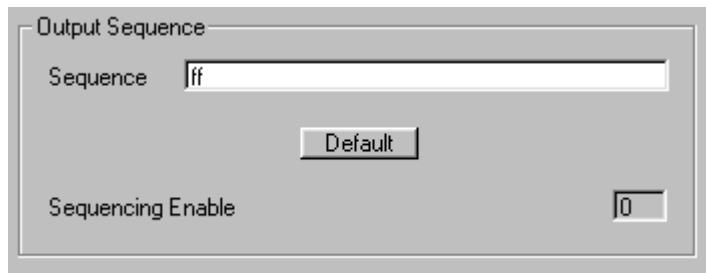
Output Sequence Editor allows you to program the imager to output data (when scanning more than one bar code) in whatever order your application requires, regardless of the order in which the bar codes are scanned. Reading the Default Sequence bar code programs the imager to the Universal values, shown below. These are the defaults. Be certain you want to delete or clear all formats before you read the Default Sequence bar code.



**Note:** To make Output Sequence Editor selections, you need to know the code I.D., code length, and character match(es) your application requires. Use the Alphanumeric bar codes to read these options. For the Alphanumeric bar codes, see the “General Programming Chart” in Appendix B.

### To add an output sequence

1. Choose the Output Sequence tab in Visual Menu.



Or scan the Enter Sequence bar code.

Enter Sequence



2. Code I.D.

On the “Symbology Chart” earlier in this chapter, find the symbology to which you want to apply the output sequence format. Locate the hex value for that symbology.

In Visual Menu, enter the two digit hex value in the Sequence field.

Or scan the two digit hex value from the “General Programming Chart” in Appendix B.

3. Length

Specify what length (up to 9999 characters) of data output will be acceptable for this symbology.

In Visual Menu, enter the four digit data length after the Code I.D. in the Sequence field.

Or scan the four digit data length from the “General Programming Chart” in Appendix B.



**Note:** A length of 50 characters is entered as 0050. The number 9999 is a universal number, indicating all lengths.

**4. Character Match Sequences**

On the “Decimal to Hex to ASCII Conversion Chart” earlier in this chapter, find the hex value that represents the character(s) you want to match.

In Visual Menu, enter the hex value after the Length in the Sequence field.

Or use the “General Programming Chart” in Appendix B to read the alphanumeric combination that represents the ASCII characters. (The number 99 is the Universal number, indicating all characters.)

**5. End Output Sequence Editor**

In Visual Menu, enter ff after the Character Match Sequence in the Sequence field and click the Write Settings to Device button ( ).

Or scan F F to enter an Output Sequence for an additional symbology, or scan Save Current Output Sequence Changes to save your entries.

Save Current Output Sequence Changes



---

### ***Output Sequence Example***

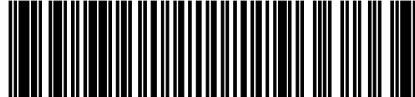
In this example, you are scanning Code 93, Code 128, and Code 39 bar codes, but you want the imager to output Code 39 1st, Code 128 2nd, and Code 93 3rd, as shown below.



\*A-CODE39\*



B – Code 128



C – Code 93



**Note:** To use this example, you must turn on Code 93 start/stop characters. For help configuring Code 93, see Chapter 4, “Symbolologies.”

You would set up the sequence editor with the following command line:

SEQBLK62999941FF6A999942FF69999943FF

The breakdown of the command line is shown below:

SEQBLK	sequence editor start command (do not use this command in Visual Menu)
62	code identifier for Code 39
9999	code length that must match for Code 39, 9999 = all lengths
41	start character match for Code 39, 41h = “A”
FF	termination string for first code
6A	code identifier for Code 128
9999	code length that must match for Code 128, 9999 = all lengths
42	start character match for Code 128, 42h = “B”
FF	termination string for second code
69	code identifier for Code 93
9999	code length that must match for Code 93, 9999 = all lengths
43	start character match for Code 93, 43h = “C”
FF	termination string for third code

---

## **Require Output Sequence**

When an output sequence is Required, all output data must conform to an edited sequence or the imager will not transmit the output data to the host device. When it's On/Not Required, the imager will attempt to get the output data to conform to an edited sequence, but if it cannot, the imager transmits all output data to the host device as is.

When the output sequence is Off, the bar code data is output to the host as the imager decodes it.



**Note:** This selection is unavailable when the Multiple Bar Codes Selection is turned on.

Required

On/Not Required\*



Off

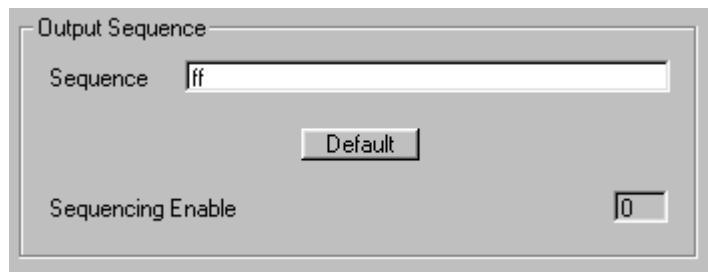


Require Output Sequence cannot be set in Visual Menu.

---

## **Output Sequence Editor**

In the Output Sequence tab of Visual Menu, enter the digits for the output sequence followed by ff in the Sequence field and then click the Write Settings to Device button ( ).



Or scan one of the following bar codes.

Enter Sequence (see Note)



Default Sequence\*



**Note:** One or more two digit numbers and Save are required after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

---

### ***Exit Selections***

Save Current Output Sequence Changes



Discard Current Output Changes



**Note:** If you want the imager to beep after each bar code is read, please see “Output Sequence Beeper” earlier in this chapter.

---

### ***Multiple Bar Codes***

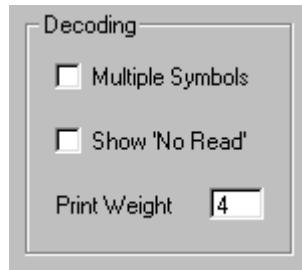
---



**Note:** This feature does not work when the imager is in Low Power mode.

When this programming selection is turned On, it allows you to read multiple bar codes with a single pull of the imager’s trigger. If you press and hold the trigger, aiming the imager at a series of bar codes, it reads unique bar codes once, beeping (if turned on) for each read. When this programming selection is turned Off, the imager will only read the bar code closest to the aiming beam.

In the Output Sequence tab of Visual Menu, choose Multiple Bar Codes. Click the Write Settings to Device button (  ) to send the new settings to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*

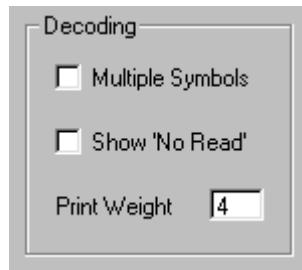


## No Read

---

With No Read turned On, the imager notifies you if a code cannot be read. In the QuickView Scan Data Window, an “NR” appears when a code cannot be read. For information on the Scan Data Window, see Chapter 5, “Using QuickView.” If No Read is turned Off, the “NR” will not appear.

In the Output Sequence tab of Visual Menu, choose Show ‘No Read’. Click the Write Settings to Device button (  ) to send the new settings to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



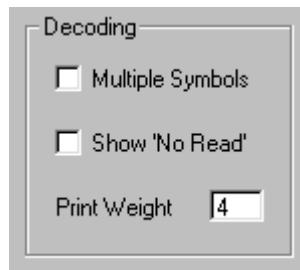
If you want a different notation than “NR,” for example, “Error” or “Bad Code,” you can edit the output message using the Data Formatter. The hex code for the No Read bar code is 9C.

## ***Print Weight***

---

Print Weight is used to adjust the way the imager reads Matrix bar codes. If an imager will be seeing consistently heavily printed matrix bar codes, then a print weight of 6 may improve the reading performance. For consistently light printing, a print weight of 2 may help. A value from 0 to 7 may be used to adjust the print weight.

In the Output Sequence tab of Visual Menu, enter a number from 0 to 7 in the Print Weight entry field. Click the Write Settings to Device button ( ) to send the new settings to the imager.



Or scan one of the following bar codes. The default print weight is 4.

Set Print Weight (see Note)

Default\*



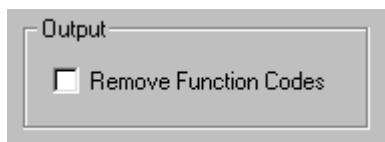
**Note:** A one digit number from 1 to 7 is required after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

## **Function Code Transmit**

---

When this selection is enabled and function codes are contained within the scanned data, the imager transmits the function code to the terminal. Charts of these function codes are provided in Chapter 8, "Interface Keys." When the imager is in keyboard wedge mode, the scan code is converted to a key code before it is transmitted.

In the Output tab of Visual Menu, choose Remove Function Codes if you do not want to transmit function codes to the terminal. Click the Write Settings to Device button () to send the new settings to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



## **Centering**

---

Use the centering feature to narrow the imager's field of view to make sure that the imager reads only those codes intended by the user. For instance, if multiple codes are placed closely together, centering will ensure that only the desired codes are read. When centering is turned on, the imager only reads codes that intersect the centering window set up by the user. The window must intersect the center of the image. If a bar code is not within the predefined window, it will not be decoded or output by the scanner.

If centering is turned on, the default window is a 60-pixel square area in the center of the imager's field of view. The position of the window may be changed by scanning the window side (top, bottom, left, right) bar codes that follow and the appropriate pixel value, if other than the default, from the Programming Chart in the back of this manual. The defaults are listed in the following table.

***Centering Defaults***

<b>Window Position</b>	<b>Default</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Serial Command</b>
Top of centering window	210	000	239	DECTPYxxx
Bottom of centering window	270	240	479	DECBTYxxx
Left of centering window	290	0	319	DECTPXxxxx
Right of centering window	350	320	639	DECBTXxxxx

The centering function can be used in conjunction with the Aimer Delay feature for the most error-free operation in applications where multiple codes are spaced closely together. Using the Aimer Delay and Centering features, the imager can emulate the operation of older systems, such as linear laser bar code scanners.

Visual Menu cannot configure the Centering feature.

Scan the following bar codes to configure the Centering feature. The default setting is marked with an asterisk (\*).

On



Off\*



Top of Centering Window



Top of Centering Window Default (210)

Bottom of Centering Window



Bottom of Centering Window Default (270)

Left Side of Centering Window



Left Side of Centering Window Default (290)

---

***Centering Bar Codes (continued)***

Right Side of Centering Window



Right Side of Centering Window Default (350)



In the example below, the gray area is the full imager field of view and the white area is the centering window. Bar Code 1 will not be read, while Bar Code 2 will be.



4

## ***Symbologies***



***Use this chapter to program the symbology settings on the 1470 and 1471.***

## ***Introduction***

---

This programming section contains the following menuing selections:

- Linear Symbology Selections
- Stacked Symbology Selections
- Postal Symbology Selections
- 2D Matrix Symbology Selections
- Diagnostics

For the default settings, see Chapter 7, “Default Charts.”



**Note:** The Visual Menu screens in this chapter may look different from the screens on your PC. Visual Menu only displays the settings that your imager supports.

## ***Linear Symbolologies***

---

Use this section to set the parameters for the following symbologies:

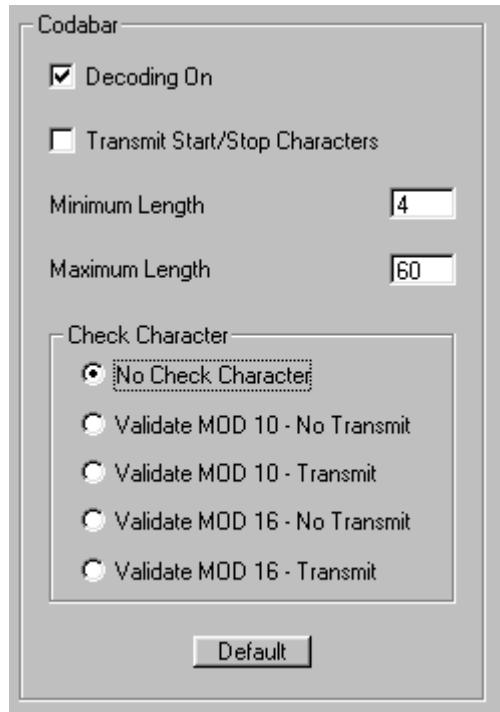
- |                      |              |
|----------------------|--------------|
| • Codabar            | • Code 128   |
| • Code 39            | • ISBT       |
| • Code 11            | • EAN/JAN 8  |
| • Interleaved 2 of 5 | • EAN/JAN 13 |
| • IATA 2 of 5        | • UPC A      |
| • MSI                | • UPC E0/E1  |
| • Code 93            | • RSS-14     |

---

## **Codabar**

For the default settings, see Chapter 7, "Default Charts."

In the CBAR/39/128 tab of Visual Menu, click Default under Codabar. Click the Write Settings to Device button () to send the new setting to the imager.



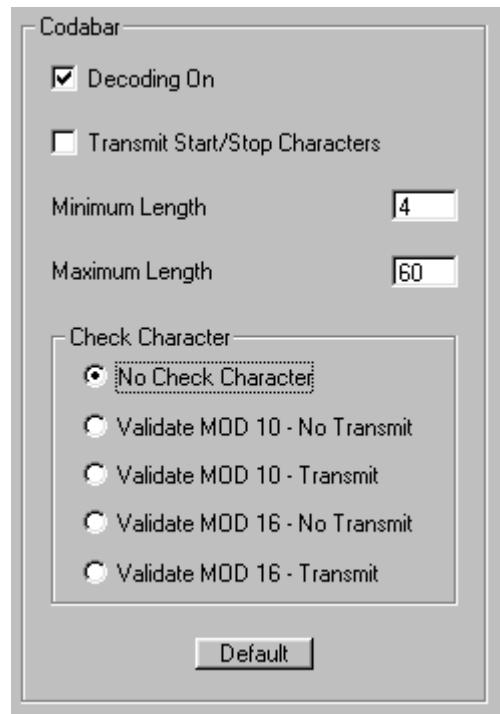
Or scan the following bar code.

Default All Codabar Settings



**Codabar On/Off**

In the CBAR/39/128 tab of Visual Menu, choose Decoding On under Codabar. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



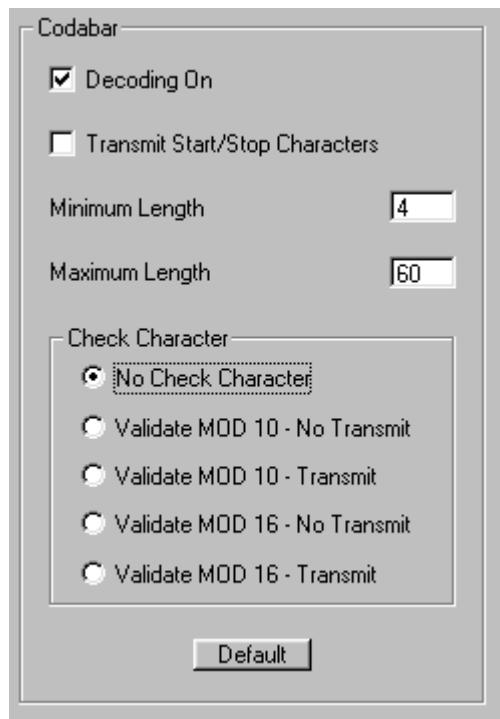
Off



### **Start/Stop Characters**

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit or not transmit Start/Stop characters.

In the CBAR/39/128 tab of Visual Menu, choose Transmit Start/Stop Characters under Codabar. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Start/Stop Transmit



Don't Transmit Start/Stop\*



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

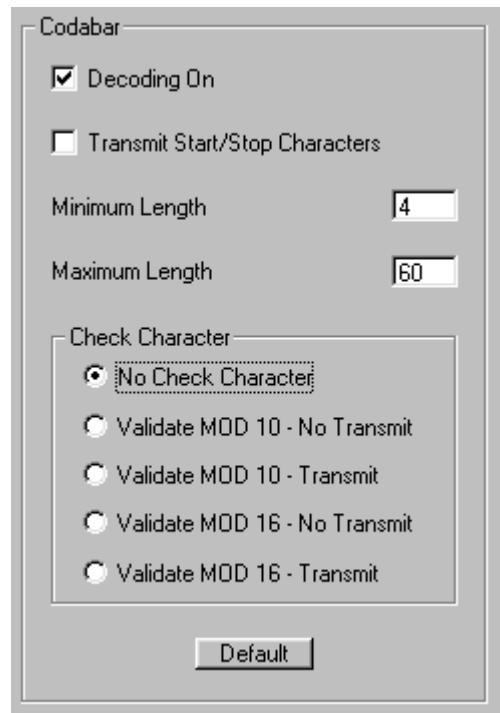
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the CBAR/39/128 tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Codabar. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

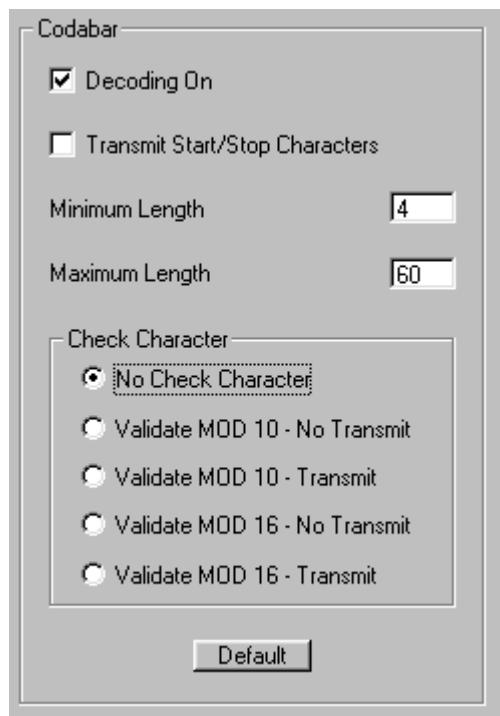
### ***Check Character***

No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate but Don't Transmit, the imager will only read Codabar bar codes printed with a check character but will not transmit the check character with the scanned data.

When Check Character is set to Validate and Transmit, the imager will only read Codabar bar codes printed with a check character and will transmit this character at the end of the scanned data.

In the CBAR/39/128 tab of Visual Menu, choose a Check Character setting under Codabar. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Validate but Don't Transmit



Validate and Transmit



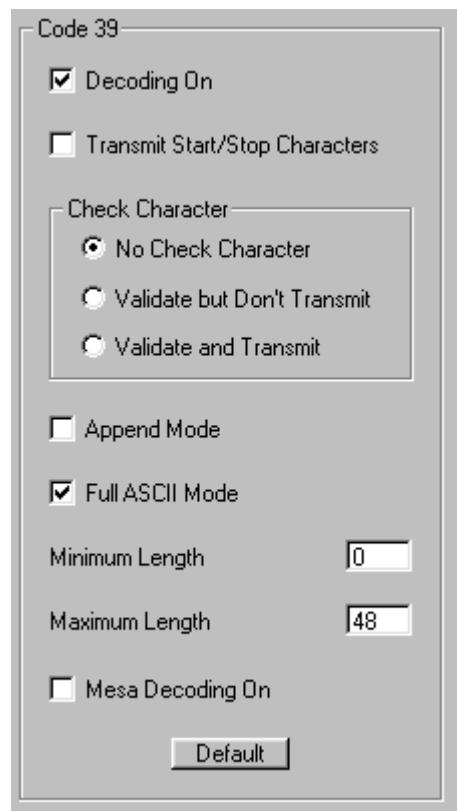
No Check Character\*



## Code 39

For the default settings, see Chapter 7, “Default Charts.”

In the CBAR/39/128 tab of Visual Menu, click Default under Code 39. Click the Write Settings to Device button ( ) to send the new setting to the imager.



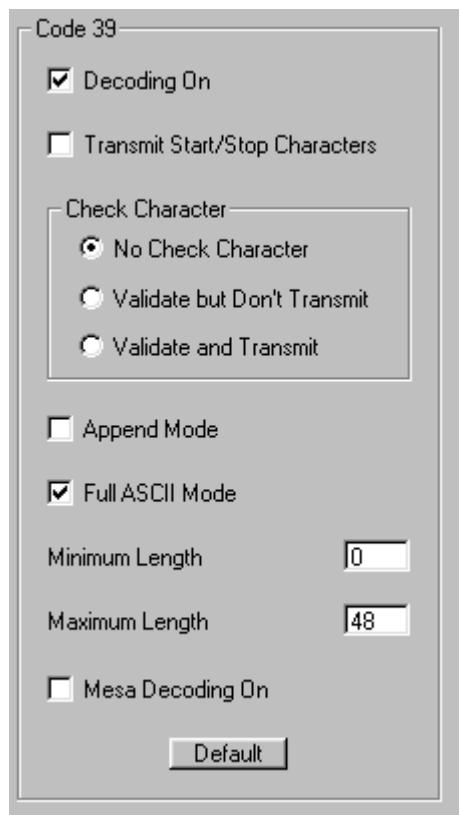
Or scan the following bar code.

Default All Code 39 Settings



### **Code 39 On/Off**

In the CBAR/39/128 tab of Visual Menu, choose Decoding On under Code 39. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*

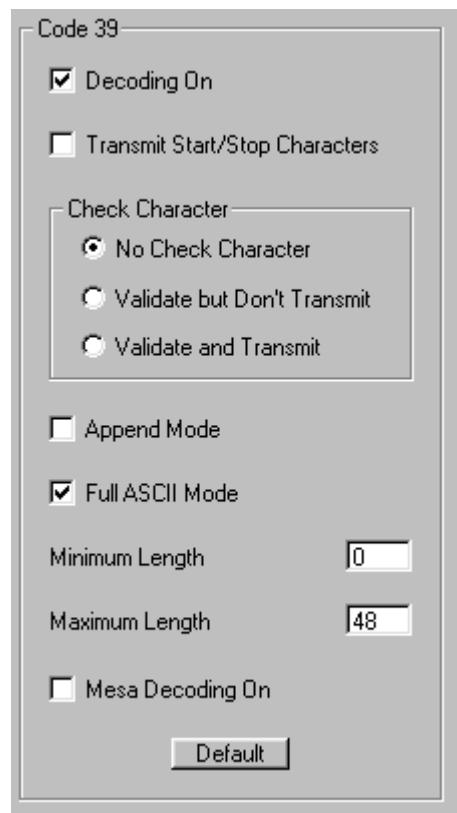
Off



### Start/Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit or not transmit Start/Stop characters.

In the CBAR/39/128 tab of Visual Menu, choose Transmit Start/Stop Characters under Code 39. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit



Don't Transmit\*



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

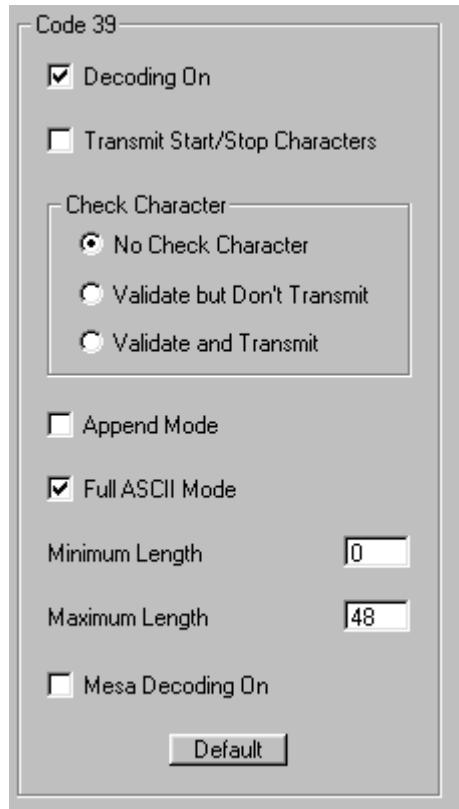
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the CBAR/39/128 tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Code 39. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



The desired message length and Save must be input after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

### **Full ASCII**

If Full ASCII Code 39 decoding is turned on, certain character pairs within the bar code will be interpreted as a single character. For example, \$V will be decoded as the ASCII character SYN, and /C will be decoded as the ASCII character #.

The following table shows certain characters on the right and their Code 39 equivalents on the left.

---

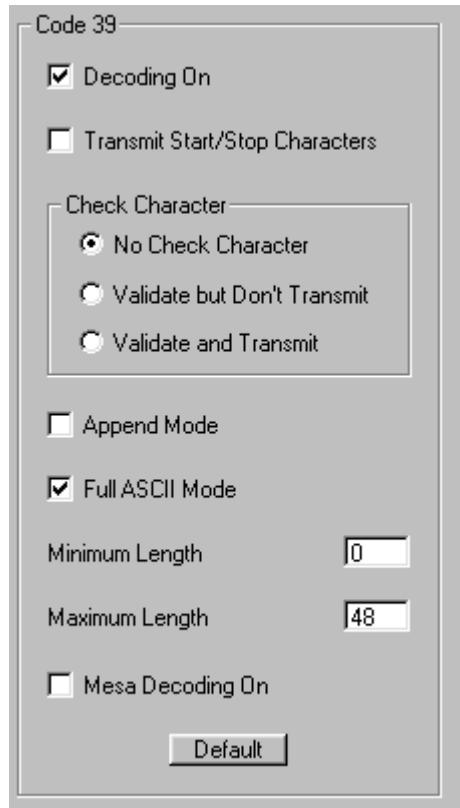
#### **ASCII Characters and Code 39 Equivalents**

NUL	%U	DLE	\$P	SP	SPACE	0	0	@	%V	P	P	'	W	p	+P
SOH	\$A	DC1	\$Q	!	/A	1	1	A	A	Q	Q	a	+A	q	+Q
STX	\$B	DC2	\$R	"	/B	2	2	B	B	R	R	b	+B	r	+R
ETX	\$C	DC3	\$S	#	/C	3	3	C	C	S	S	c	+C	s	+S
EOT	\$D	DC4	\$T	\$	/D	4	4	D	D	T	T	d	+D	t	+T
ENQ	\$E	NAK	\$U	%	/E	5	5	E	E	U	U	e	+E	u	+U
ACK	\$F	SYN	\$V	&	/F	6	6	F	F	V	V	f	+F	v	+V
BEL	\$G	ETB	\$W	'	/G	7	7	G	G	W	W	g	+G	w	+W
BS	\$H	CAN	\$X	(	/H	8	8	H	H	X	X	h	+H	x	+X
HT	\$I	EM	\$Y	)	/I	9	9	I	I	Y	Y	i	+I	y	+Y
LF	\$J	SUB	\$Z	*	/J	:	/Z	J	J	Z	Z	j	+J	z	+Z
VT	\$K	ESC	%A	+	/K	;	%F	K	K	[	%K	k	+K	{	%P
FF	\$L	FS	%B	,	/L	<	%G	L	L	\	%L	l	+L		%Q
CR	\$M	GS	%C	-	-	=	%H	M	M	]	%M	m	+M	}	%R
SO	\$N	RS	%D	.	.	>	%I	N	N	^	%N	n	+N	~	%S
SI	\$O	US	%E	/	/O	?	%J	O	O	-	%O	o	+O	DEL	%T

Character pairs /M and /N decode as a minus sign and period respectively.

Character pairs /P through /Y decode as 0 through 9.

In the CBAR/39/128 tab of Visual Menu, choose Full ASCII Mode under Code 39.  
Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Full ASCII On



Full ASCII Off\*



### Check Character

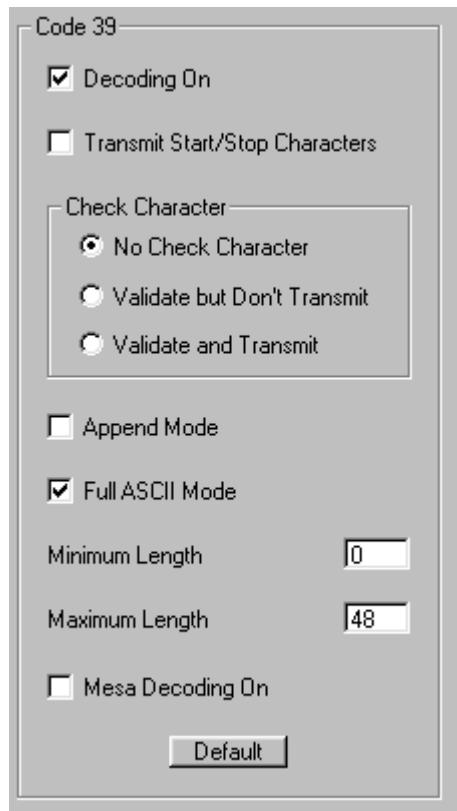
No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate but Don't Transmit, the imager will only read Code 39 bar codes printed with a check character but will not transmit the check character with the scanned data.

When Check Character is set to Validate and Transmit, the imager will only read Code 39 bar codes printed with a check character and will transmit this character at the end of the scanned data.

In the CBAR/39/128 tab of Visual Menu, choose a Check Character setting under

Code 39. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Validate but Don't Transmit



Validate and Transmit



No Check Character\*



---

## ***Code 11***

For the default settings, see Chapter 7, "Default Charts."

Default All Code 11 Settings



### ***Code 11 On/Off***

The default setting is marked with an asterisk (\*).

On



Off\*



## ***Message Length***

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

### ***Example***

Decode only those bar codes with a count of 9-20 characters.

Minimum length = 09   Maximum length = 20

### ***Example***

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

Minimum Message Length



Maximum Message Length

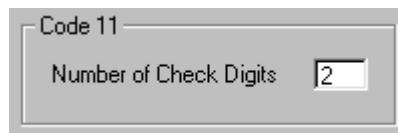


The desired message length and Save must be input after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

## ***Check Digits Required***

This option sets whether 1 or 2 check digits are required with Code 11 bar codes.

In the Other Linears tab of Visual Menu, enter 1 or 2 in the Number of Check Digits field under Code 11. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

One Check Digit



Two Check Digits\*

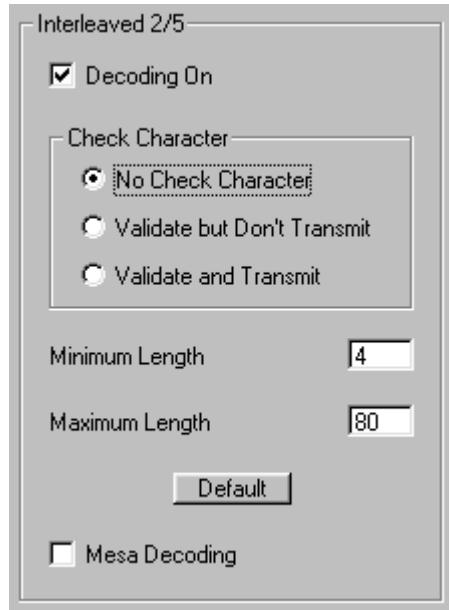


---

## **Interleaved 2 of 5**

For the default settings, see Chapter 7, "Default Charts."

In the 2 of 5/93 tab of Visual Menu, click Default under Interleaved 2/5. Click the Write Settings to Device button (  ) to send the new setting to the imager.



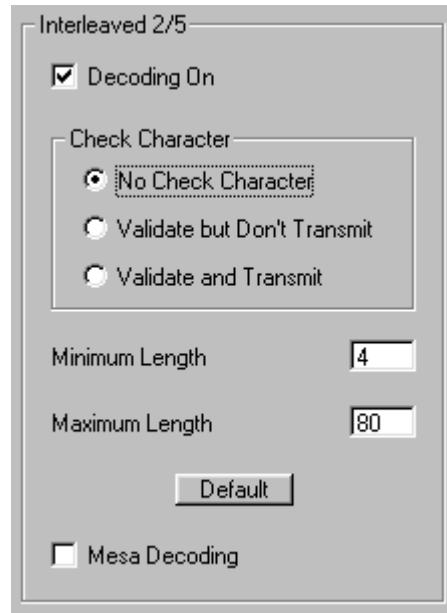
Or scan the following bar code.

Default All Interleaved 2 of 5 Settings



### **Interleaved 2 of 5 On/Off**

In the 2 of 5/93 tab of Visual Menu, choose Decoding On under Interleaved 2/5. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Of



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

Minimum length = 09   Maximum length = 20

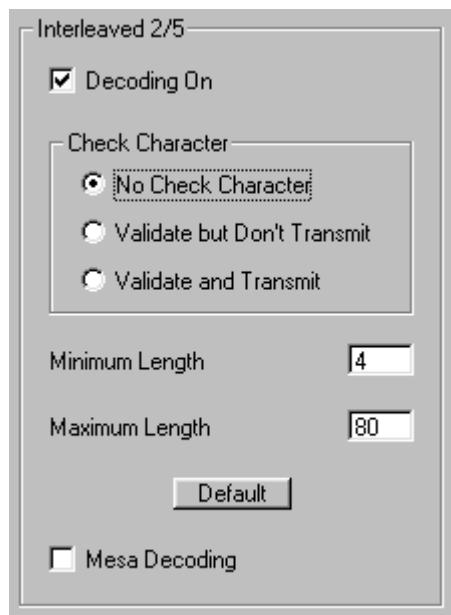
**Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15 Maximum length = 15

In the 2 of 5/93 tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under

Interleaved 2/5. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



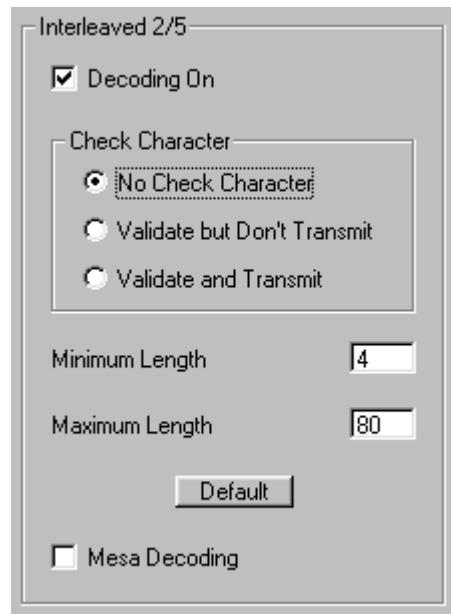
The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

**Check Digit**

When Check Digit is set to Validate but Don't Transmit, the imager will only read Interleaved 2 of 5 bar codes printed with a check digit but will not transmit the check digit with the scanned data.

When Check Digit is set to Validate and Transmit, the imager will only read Interleaved 2 of 5 bar codes printed with a check digit and will transmit this digit at the end of the scanned data.

In the 2 of 5/93 tab of Visual Menu, choose a Check Character setting under Interleaved 2/5. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Validate but Don't Transmit



Validate and Transmit



No Check Digit\*

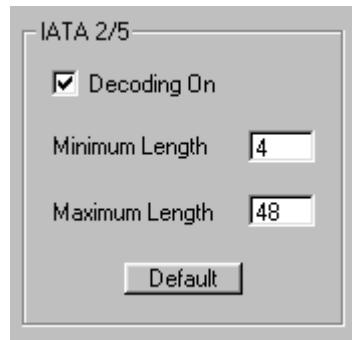


---

## **IATA 2 of 5**

For the default settings, see Chapter 7, "Default Charts."

In the Other Linears tab of Visual Menu, click Default under IATA 2/5. Click the Write Settings to Device button () to send the new setting to the imager.



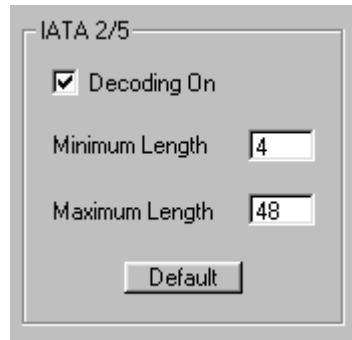
Or scan the following bar code.

Default All IATA 2 of 5 Settings



### **IATA 2 of 5 On/Off**

In the Other Linears tab of Visual Menu, choose Decoding On under IATA 2/5. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

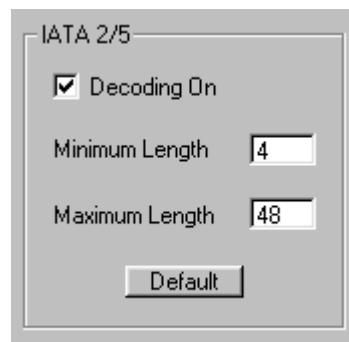
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Other Linears tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under IATA 2/5. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



After reading this programming bar code, you must input the desired message length and Save. Refer to the “General Programming Chart” in Appendix B.

---

## ***MSI***

For the default settings, see Chapter 7, “Default Charts.”

Default All MSI Settings



### ***MSI On/Off***

The default setting is marked with an asterisk (\*).

On



Off\*



### ***Message Length***

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### ***Example***

Decode only those bar codes with a count of 9-20 characters.

Minimum length = 09   Maximum length = 20

**Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

Minimum Message Length



Maximum Message Length



The desired message length and Save must be input after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

**Check Digit**

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not.

In the Other Linears tab of Visual Menu, choose Check Character Transmit under MSI.

Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit Check Digit



Don't Transmit Check Digit\*

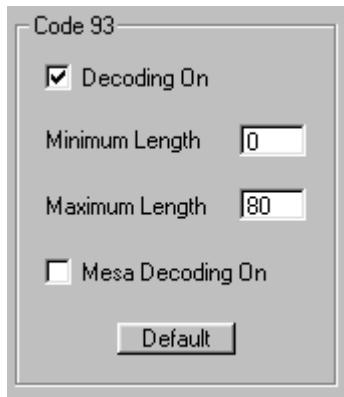


---

## **Code 93**

For the default settings, see Chapter 7, "Default Charts."

In the 2 of 5/93 tab of Visual Menu, click Default under Code 93. Click the Write Settings to Device button (  ) to send the new setting to the imager.



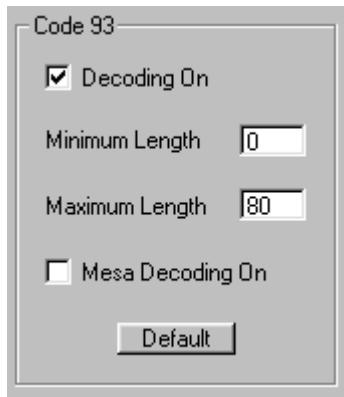
Or scan the following bar code.

Default All Code 93 Settings



### **Code 93 On/Off**

In the 2 of 5/93 tab of Visual Menu, choose Decoding On under Code 93. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

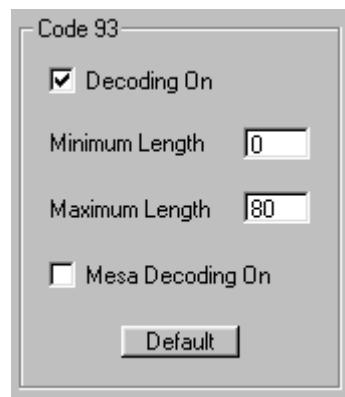
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the 2 of 5/93 tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Code 93. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



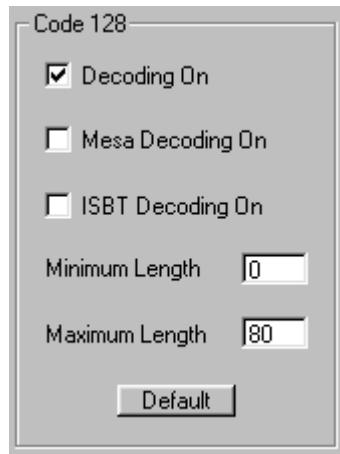
The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

---

## ***Code 128***

For the default settings, see Chapter 7, "Default Charts."

In the CBAR/39/128 tab of Visual Menu, click Default under Code 128. Click the Write Settings to Device button ( ) to send the new setting to the imager.



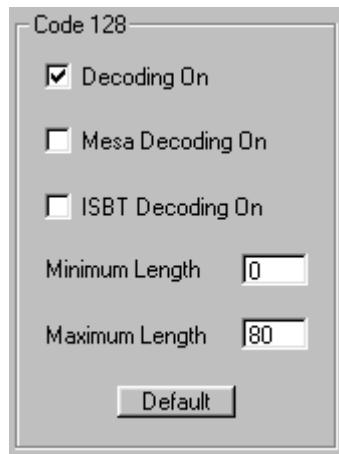
Or scan the following bar code.

Default All Code 128 Settings



### **Code 128 On/Off**

In the CBAR/39/128 tab of Visual Menu, choose Decoding On under Code 128. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

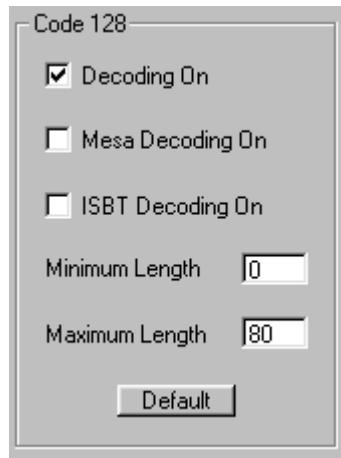
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the CBAR/39/128 tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Code 128. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



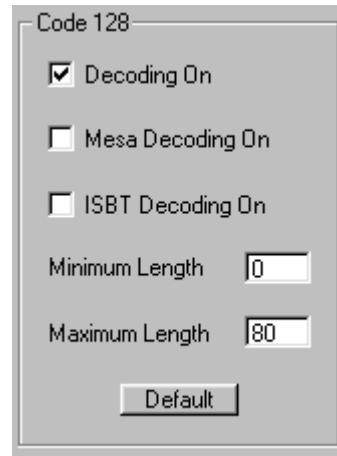
The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

**ISBT**

ISBT codes are a combination of multiple linear bar codes used to mark blood bags.

In the CBAR/39/128 tab of Visual Menu, choose ISBT Decoding On under Code 128.

Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*

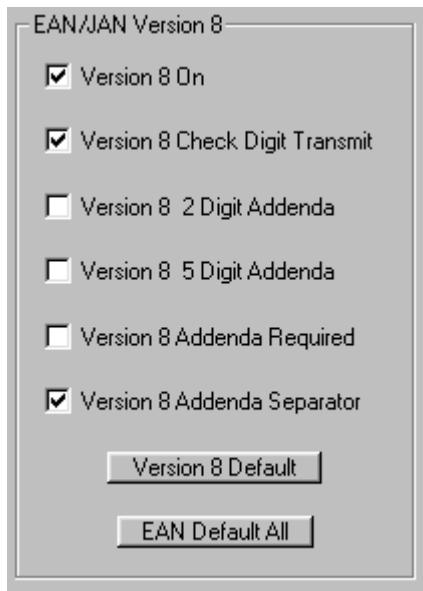


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## **EAN/JAN 8**

For the default settings, see Chapter 7, "Default Charts."

In the UPC/EAN tab of Visual Menu, click Version 8 Default under EAN/JAN Version 8. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan the following bar code.

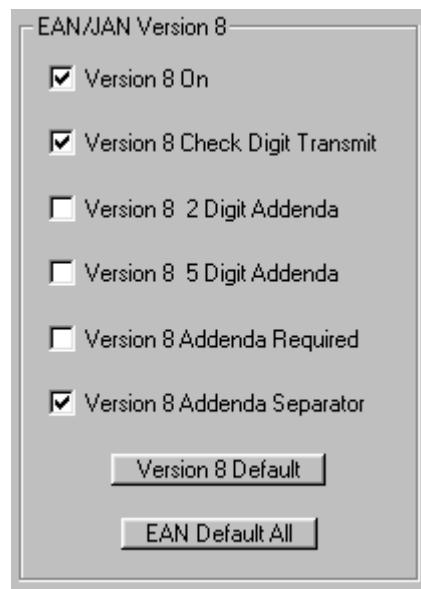
Default All EAN/JAN 8 Settings



**EAN/JAN 8 On/Off**

In the UPC/EAN tab of Visual Menu, choose Version 8 On under EAN/JAN Version 8.

Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



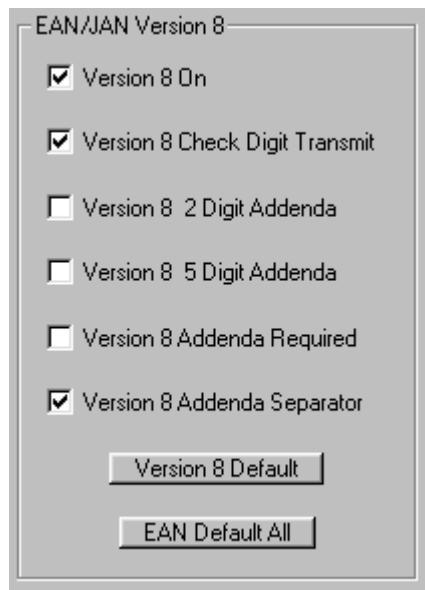
Off\*



### **Check Digit**

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not.

In the UPC/EAN tab of Visual Menu, choose Version 8 Check Digit Transmit under EAN/JAN Version 8. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit Check Digit



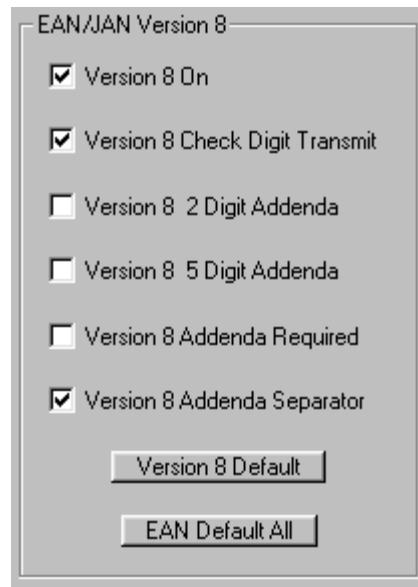
Don't Transmit Check Digit\*



**EAN/JAN 8 Addenda**

You can add 2 or 5 digits to the end of all scanned EAN/JAN 8 data.

In the UPC/EAN tab of Visual Menu, choose Version 8 2 Digit Addenda or Version 8 5 Digit Addenda under EAN/JAN Version 8. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

2 Digit Addenda On



2 Digit Addenda Off\*



5 Digit Addenda On



5 Digit Addenda Off\*



### **EAN/JAN 8 Addenda Required**

When Addenda Required is used, the imager will only read EAN/JAN 8 bar codes that have addenda.

In the UPC/EAN tab of Visual Menu, choose Version 8 Addenda Required under EAN/JAN Version 8. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Required



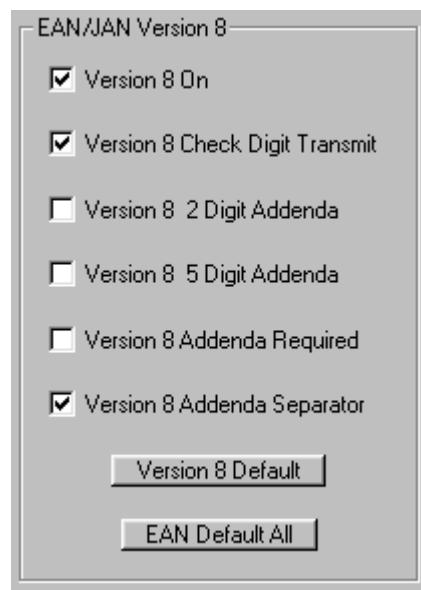
Not Required\*



**EAN/JAN 8 Addenda Separator**

When this feature is On, there is a space between the data from the bar code and the data from the addenda. When turned Off, there is no space.

In the UPC/EAN tab of Visual Menu, choose Version 8 Addenda Separator under EAN/JAN Version 8. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Space



No Space\*

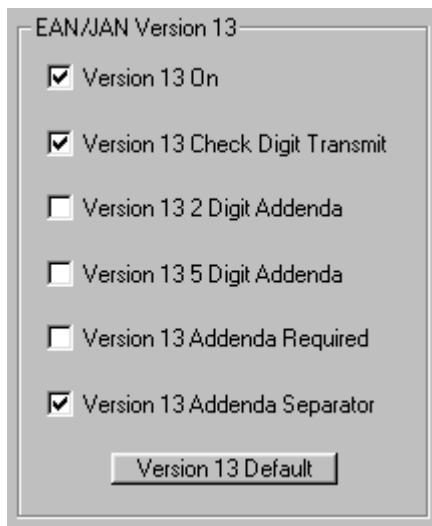


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## **EAN/JAN 13**

For the default settings, see Chapter 7, "Default Charts."

In the UPC/EAN tab of Visual Menu, click Version 13 Default under EAN/JAN Version 13. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan the following bar code.

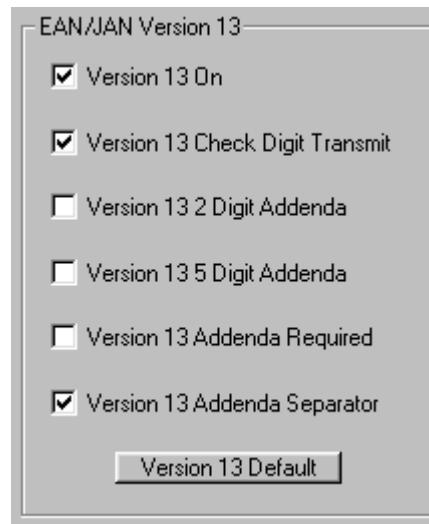
Default all EAN/JAN 13 Settings



**EAN/JAN 13 On/Off**

In the UPC/EAN tab of Visual Menu, choose Version 13 On under EAN/JAN

Version 13. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



### **Check Digit**

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not.

In the UPC/EAN tab of Visual Menu, choose Version 13 Check Digit Transmit under EAN/JAN Version 13. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit Check Digit



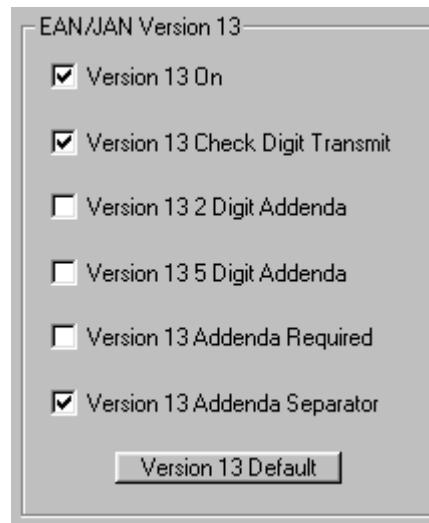
Don't Transmit Check Digit\*



**EAN/JAN 13 Addenda**

You can add 2 or 5 digits to the end of all scanned EAN/JAN 13 data.

In the UPC/EAN tab of Visual Menu, choose Version 13 2 Digit Addenda or Version 13 5 Digit Addenda under EAN/JAN Version 13. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

2 Digit Addenda On



2 Digit Addenda Off\*



5 Digit Addenda On



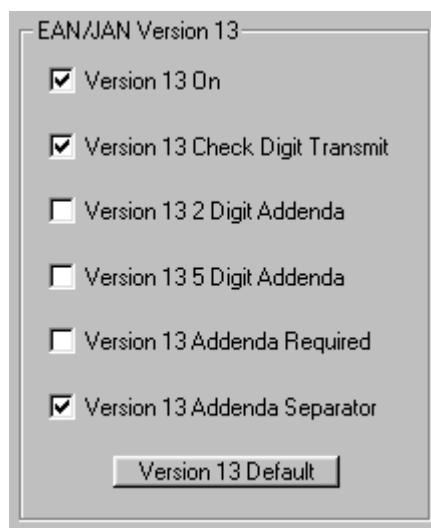
5 Digit Addenda Off\*



### **EAN/JAN 13 Addenda Required**

When Addenda Required is used, the imager will only read EAN/JAN 13 bar codes that have addenda.

In the UPC/EAN tab of Visual Menu, choose Version 13 Addenda Required under EAN/JAN Version 13. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Required



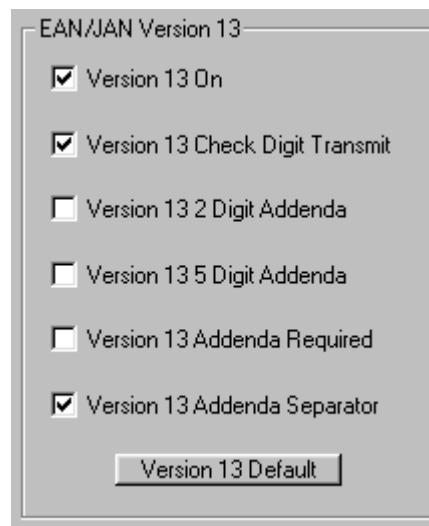
Not Required\*



**EAN/JAN 13 Addenda Separator**

When this feature is On, there is a space between the data from the bar code and the data from the addenda. When turned Off, there is no space.

In the UPC/EAN tab of Visual Menu, choose Version 13 Addenda Separator under EAN/JAN Version 13. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Space



No Space\*

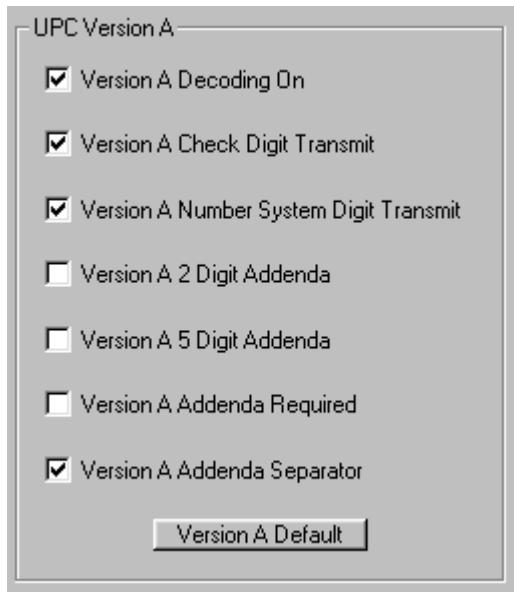


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## **UPC A**

For the default settings, see Chapter 7, "Default Charts."

In the UPC/EAN tab of Visual Menu, click Version A Default under UPC Version A. Click the Write Settings to Device button () to send the new setting to the imager.



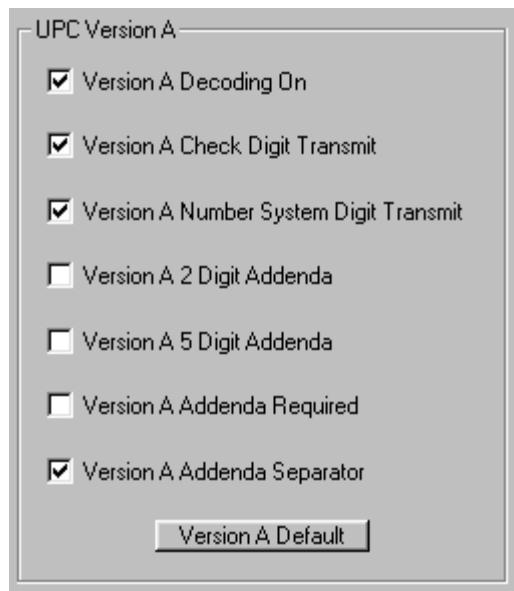
Or scan the following bar code.

Default All UPC A Settings



**UPC A On/Off**

In the UPC/EAN tab of Visual Menu, choose Version A Decoding On under UPC Version A. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



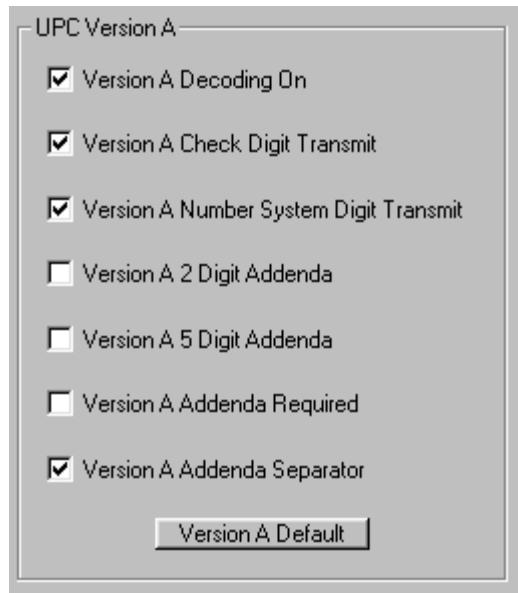
Off



### **Check Digit**

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not.

In the UPC/EAN tab of Visual Menu, choose Version A Check Digit Transmit under UPC Version A. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit Check Digit



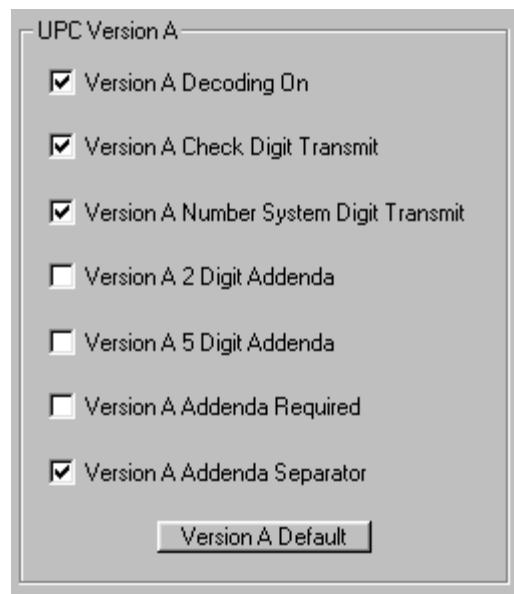
Don't Transmit Check Digit\*



## **Number System**

The numeric system digit of a UPC bar code is normally transmitted, but the imager can be programmed so it will not transmit it.

In the UPC/EAN tab of Visual Menu, choose Version A Number System Digit Transmit under UPC Version A. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit Number System\*



Don't Transmit Number System



### **UPC A Addenda**

You can add 2 or 5 digits to the end of all scanned UPC A data.

In the UPC/EAN tab of Visual Menu, choose Version A 2 Digit Addenda or Version A 5 Digit Addenda under UPC Version A. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

2 Digit Addenda On



2 Digit Addenda Off\*



5 Digit Addenda On



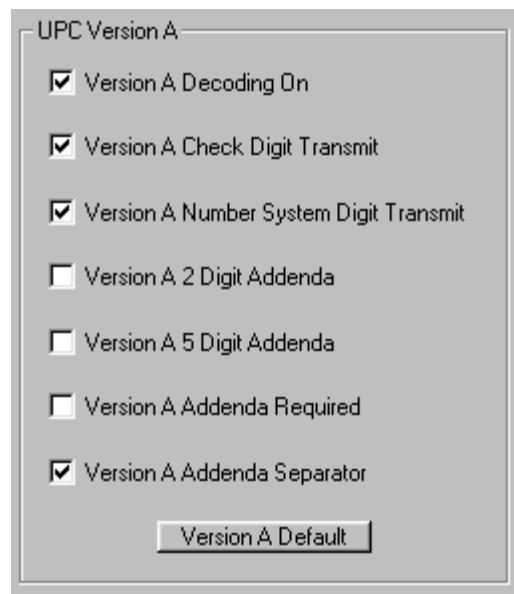
5 Digit Addenda Off\*



### UPC A Addenda Required

When Addenda Required is used, the imager will only read UPC A bar codes that have addenda.

In the UPC/EAN tab of Visual Menu, choose Version A Addenda Required under UPC Version A. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Required



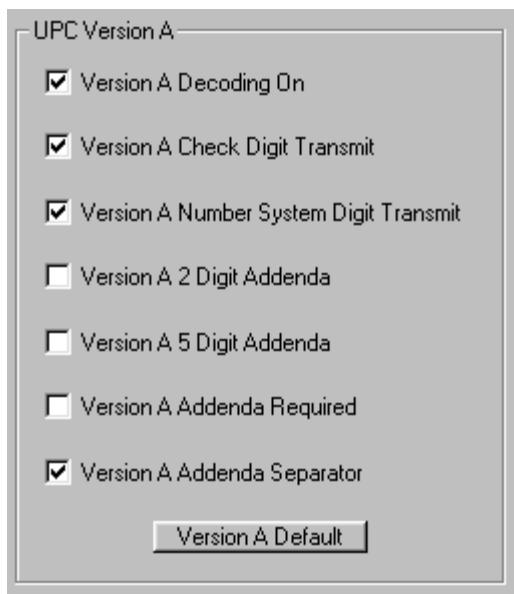
Not Required\*



### **UPC A Addenda Separator**

When this feature is On, there is a space between the data from the bar code and the data from the addenda. When turned Off, there is no space.

In the UPC/EAN tab of Visual Menu, choose Version A Addenda Separator under UPC Version A. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Space



No Space\*

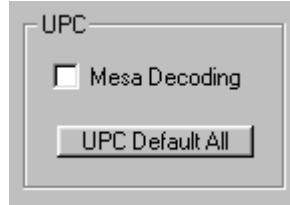


---

**UPC E0/E1**

For the default settings, see Chapter 7, “Default Charts.”

In the UPC/EAN tab of Visual Menu, click UPC Default All under UPC. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan the following bar code.

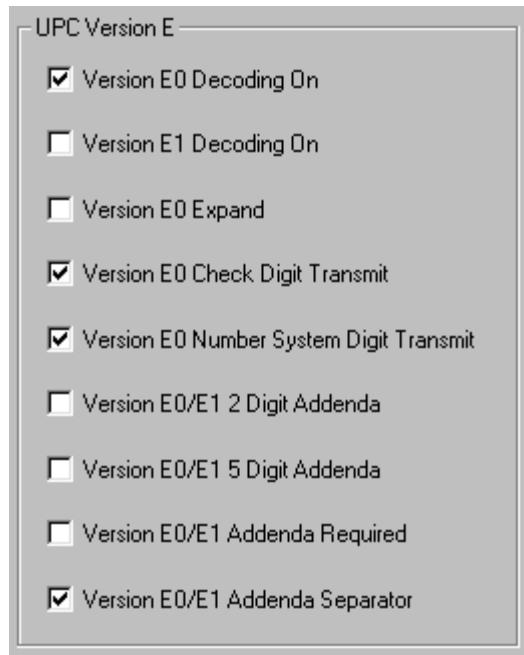
Default All UPC E0/E1 Settings



### **UPC E0 On/Off**

Most UPC bar codes lead with the 0 number system. For these codes, use the UPC E0 selection. If you need to read codes that lead with the 1 number system, use the UPC E1 selection (see "UPC E1 On/Off" later in this chapter).

In the UPC/EAN tab of Visual Menu, choose Version E0 Decoding On under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



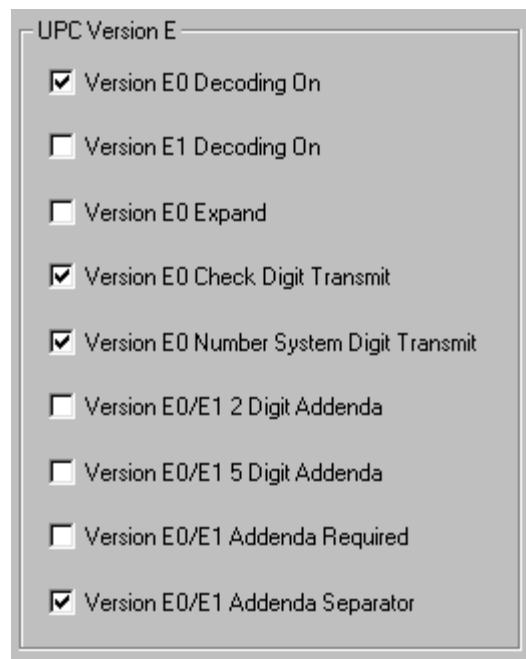
Off\*



### Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not.

In the UPC/EAN tab of Visual Menu, choose Version E0 Check Digit Transmit under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit Check Digit



Don't Transmit Check Digit\*

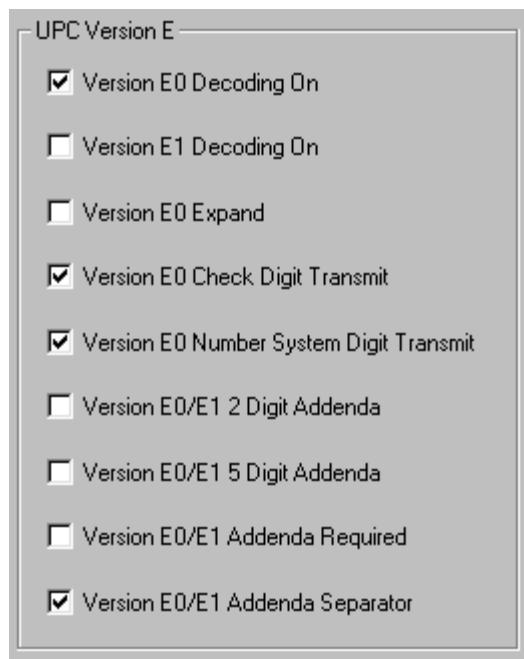


### **Number System**

The numeric system digit of a UPC bar code is normally transmitted, but the imager can be programmed so it will not transmit it.

In the UPC/EAN tab of Visual Menu, choose Version E0 Number System Digit

Transmit under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Transmit Number System



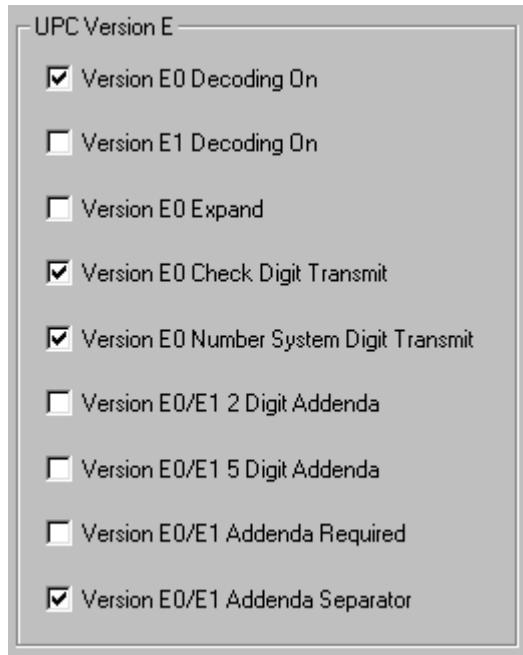
Don't Transmit Number System\*



### Version E Expand

Version E Expand, expands the UPC-E code to the 12 digit, UPC-A format.

In the UPC/EAN tab of Visual Menu, choose Version E0 Expand under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Expand



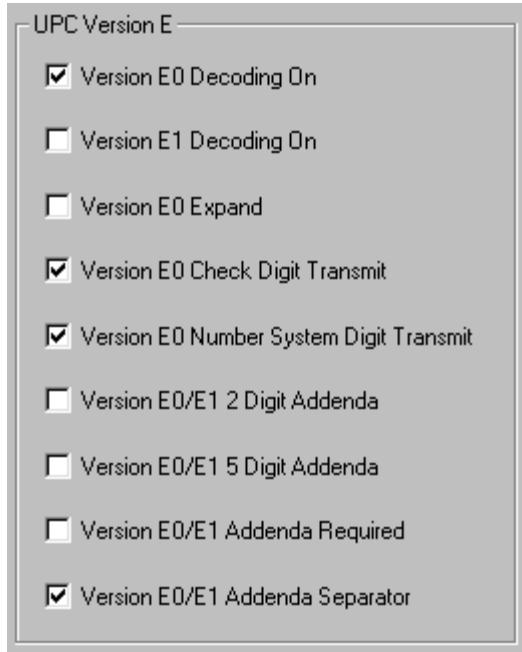
Don't Expand\*



### **UPC E1 On/Off**

Most UPC bar codes lead with the 0 number system. For these codes, use the UPC E0 selection (see “UPC E0 On/Off” earlier in this chapter). If you need to read codes that lead with the 1 number system, use the UPC E1 selection.

In the UPC/EAN tab of Visual Menu, choose Version E1 Decoding On under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



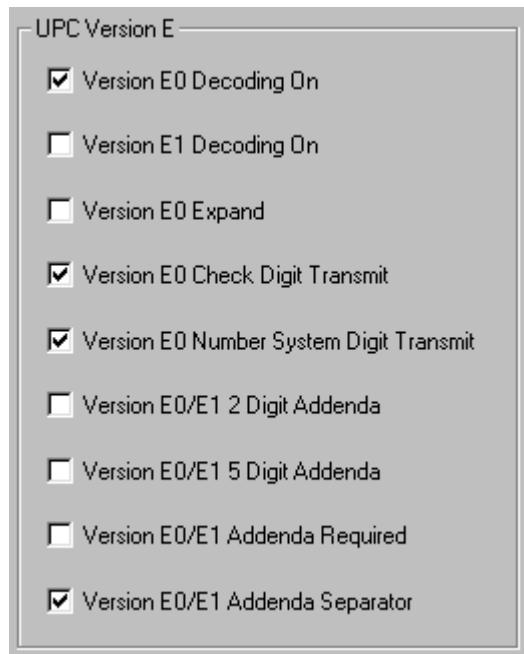
Off\*



**UPC E0/E1 Addenda**

You can add 2 or 5 digits to the end of all scanned UPC E0 and E1 data.

In the UPC/EAN tab of Visual Menu, choose Version E0/E1 2 Digit Addenda or Version E0/E1 5 Digit Addenda under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

2 Digit Addenda On



2 Digit Addenda Off\*



5 Digit Addenda On



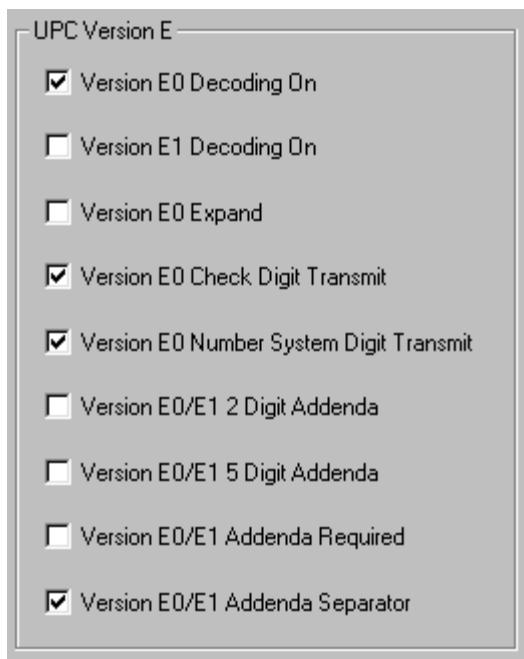
5 Digit Addenda Off\*



### **UPC E0/E1 Addenda Required**

When Addenda Required is used, the imager will only read UPC E0 and E1 bar codes that have addenda.

In the UPC/EAN tab of Visual Menu, choose Version E0/E1 Addenda Required under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Required



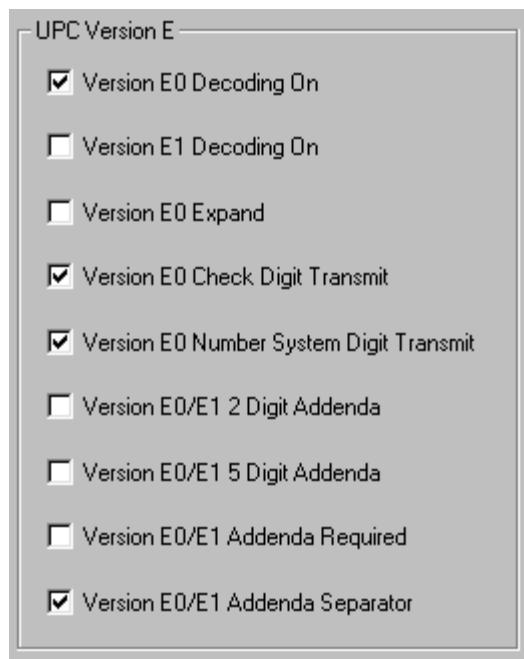
Not Required\*



**UPC E0/E1 Addenda Separator**

When this feature is On, there is a space between the data from the bar code and the data from the addenda. When turned Off, there is no space.

In the UPC/EAN tab of Visual Menu, choose Version E0/E1 Addenda Separator under UPC Version E. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

Space



No Space\*

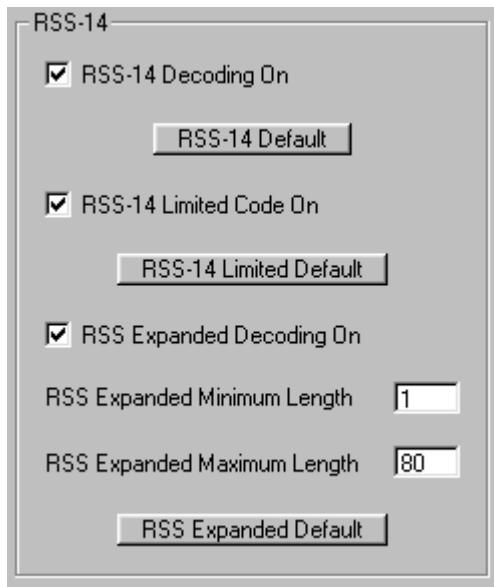


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## **RSS-14**

For the default settings, see Chapter 7, "Default Charts."

In the Other Linears tab of Visual Menu, click RSS-14 Default under RSS-14. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan the following bar code.

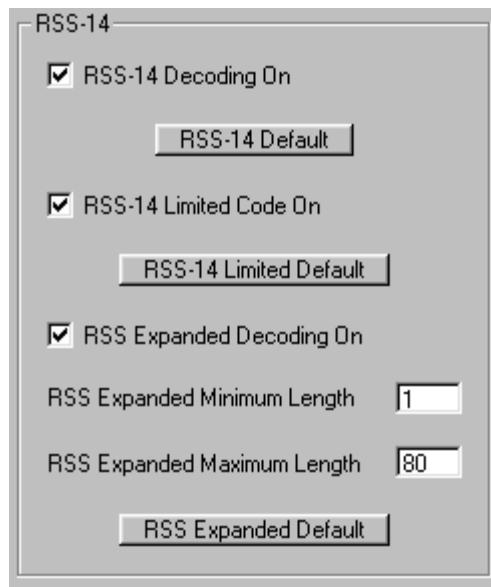
Default All RSS-14 Settings



**RSS-14 On/Off**

Reduced Space Symbology (RSS) is a family of linear bar codes that meets restricted space requirements, while still providing full product identification.

In the Other Linears tab of Visual Menu, choose RSS-14 Decoding On under RSS-14. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



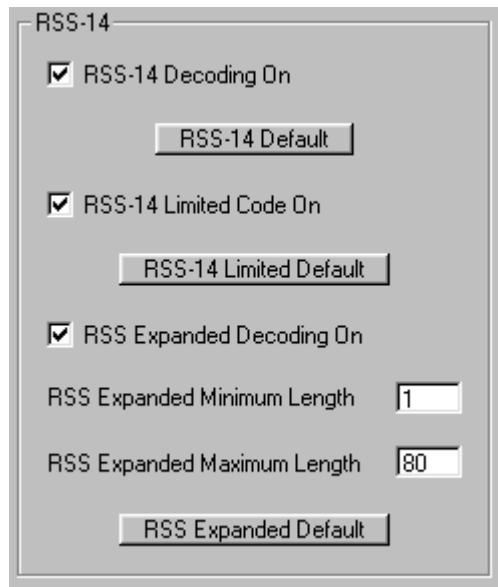
---

## **RSS-14 Limited**

For the default settings, see Chapter 7, "Default Charts."

In the Other Linears tab of Visual Menu, click RSS-14 Limited Default under RSS-14.

Click the Write Settings to Device button (  ) to send the new setting to the imager.



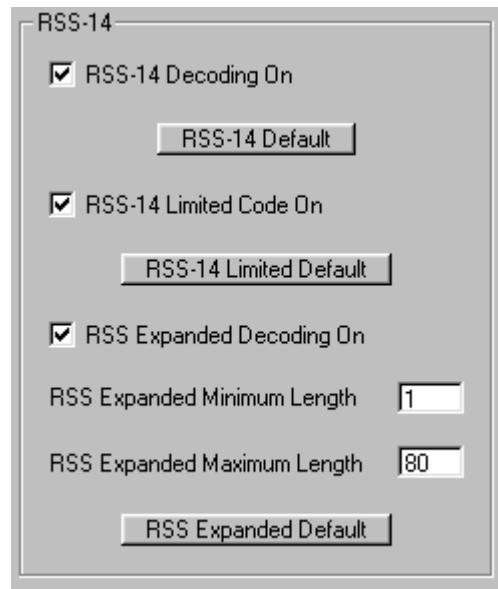
Or scan the following bar code.

Default All RSS-14 Limited Settings



**RSS-14 Limited On/Off**

In the Other Linears tab of Visual Menu, choose RSS-14 Limited Code On under RSS-14. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



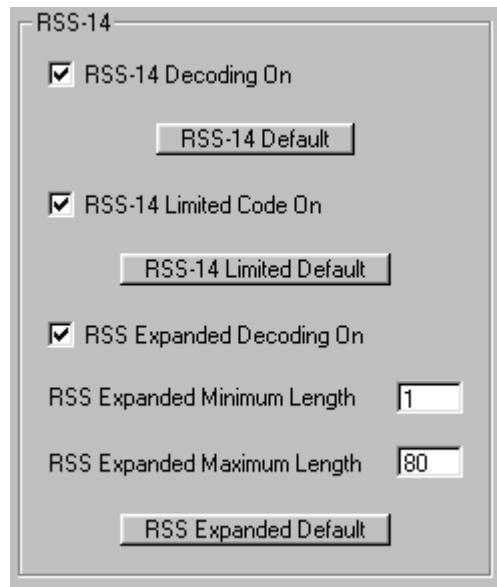
---

## **RSS-14 Expanded**

For the default settings, see Chapter 7, "Default Charts."

In the Other Linears tab of Visual Menu, click RSS Expanded Default under RSS-14.

Click the Write Settings to Device button (  ) to send the new setting to the imager.



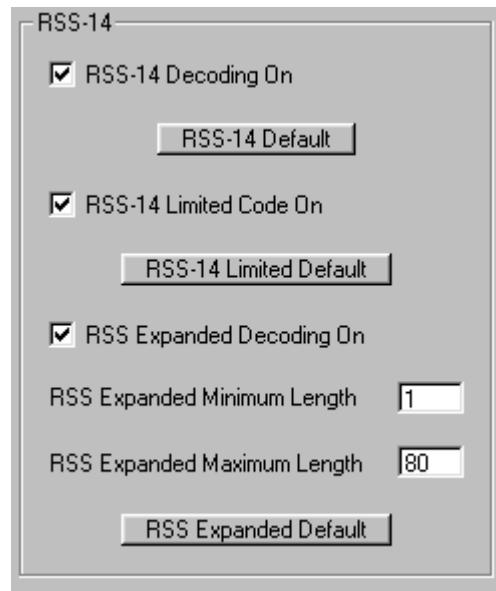
Or scan the following bar code.

Default All RSS-14 Expanded Settings



### RSS-14 Expanded On/Off

In the Other Linears tab of Visual Menu, choose RSS Expanded Decoding On under RSS-14. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



### Message Length

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### Example

Decode only those bar codes with a count of 9-20 characters.

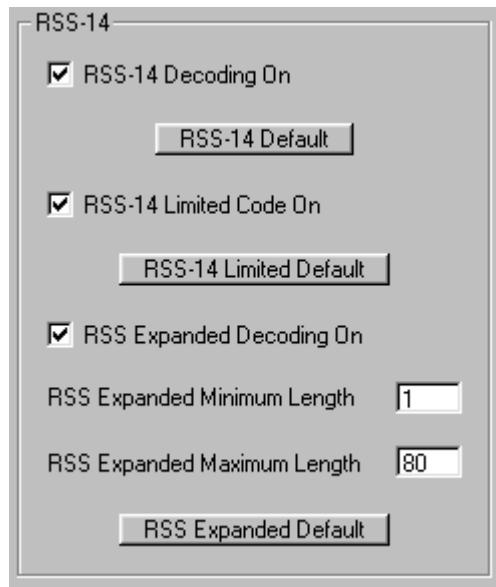
Minimum length = 09   Maximum length = 20

**Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15 Maximum length = 15

In the Other Linears tab of Visual Menu, enter the minimum message length in the RSS Expanded Minimum Length field and the maximum message length in the RSS Expanded Maximum Length field under RSS-14. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

## **Stacked Symbolologies**

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Stacked symbolologies are multi-row linear symbolologies that typically have a security algorithm. Use this section to set the parameters for the following symbolologies:

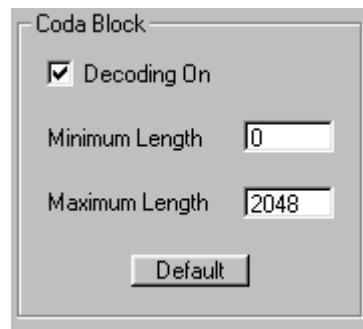
- Coda Block
- PDF 417
- Micro PDF 417
- Code 49
- Composite Codes

---

### **Coda Block**

For the default settings, see Chapter 7, “Default Charts.”

In the Matrix/Postal tab of Visual Menu, click Default under Coda Block. Click the Write Settings to Device button () to send the new setting to the imager.



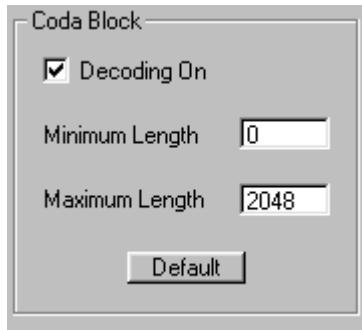
Or scan the following bar code.

[Default All Coda Block Settings](#)



### **Coda Block On/Off**

In the Matrix/Postal tab of Visual Menu, choose Decoding On under Coda Block. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

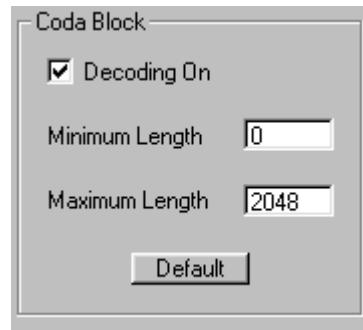
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Matrix/Postal tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Coda Block. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length

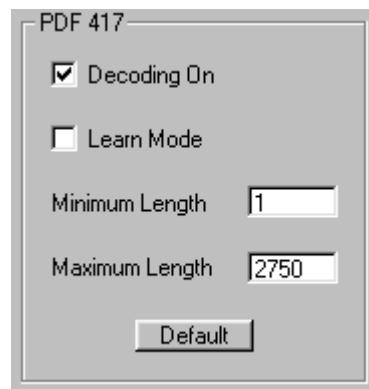


The desired message length and Save must be input after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

## PDF 417

For the default settings, see Chapter 7, “Default Charts.”

In the Stacked Linears tab of Visual Menu, click Default under PDF 417. Click the Write Settings to Device button () to send the new setting to the imager.



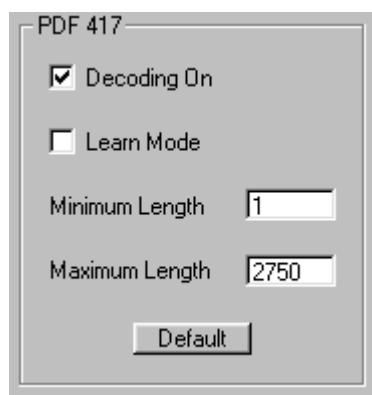
Or scan the following bar code.

Default All PDF 417 Settings



### **PDF 417 On/Off**

In the Stacked Linears tab of Visual Menu, choose Decoding On under PDF 417. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*

Off



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

**Example**

Decode only those bar codes with a count of 9-20 characters.

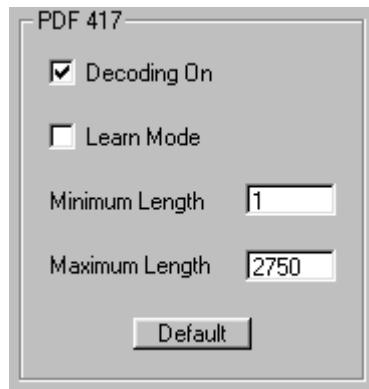
Minimum length = 09   Maximum length = 20

**Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Stacked Linears tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under PDF 417. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



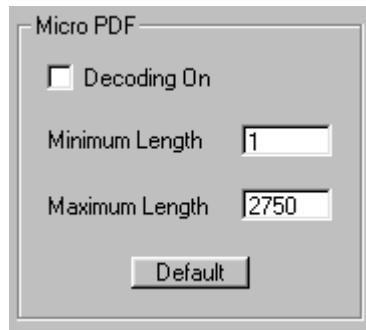
The desired message length and Save must be input after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

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## **Micro PDF 417**

For the default settings, see Chapter 7, "Default Charts."

In the Stacked Linears tab of Visual Menu, click Default under Micro PDF. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan the following bar code.

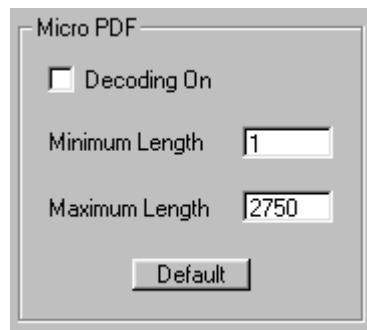
Default All Micro PDF 417 Settings



### **Micro PDF 417 On/Off**

In the Stacked Linears tab of Visual Menu, choose Decoding On under Micro PDF.

Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

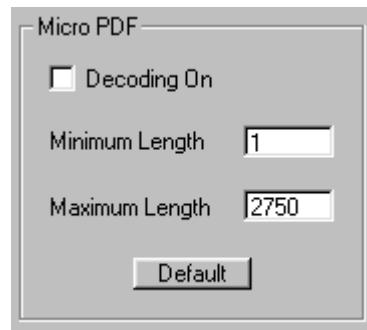
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Stacked Linears tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Micro PDF. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



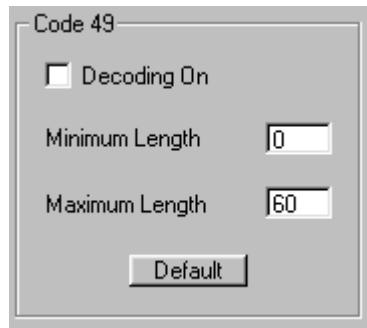
The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

---

### **Code 49**

For the default settings, see Chapter 7, "Default Charts."

In the Stacked Linears tab of Visual Menu, click Default under Code 49. Click the Write Settings to Device button (  ) to send the new setting to the imager.



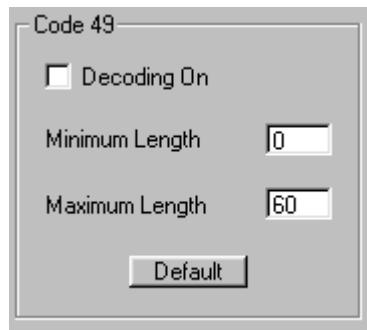
Or scan the following bar code.

Default All Code 49 Settings



**Code 49 On/Off**

In the Stacked Linears tab of Visual Menu, choose Decoding On under Code 49. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*

**Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

**Example**

Decode only those bar codes with a count of 9-20 characters.

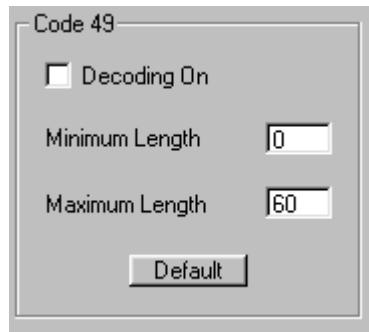
Minimum length = 09   Maximum length = 20

**Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Stacked Linears tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Code 49. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



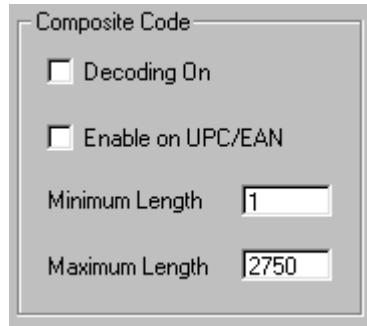
The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

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## **Composite Codes**

Linear codes are combined with a unique 2D composite component to form a new class called Composite symbology. Composite symbologies allow for the co-existence of symbologies already in use.

In the Stacked Linears tab of Visual Menu, choose Decoding On under Composite Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



### ***Message Length***

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### ***Example***

Decode only those bar codes with a count of 9-20 characters.

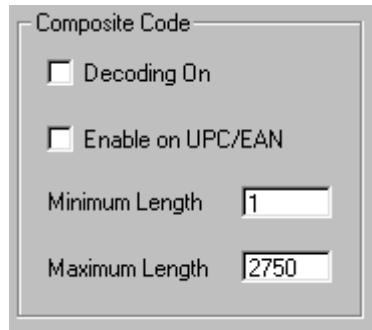
Minimum length = 09   Maximum length = 20

#### ***Example***

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Stacked Linears tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Composite Code. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

## Postal Symbolologies



**Note:** For best performance when reading a postal symbology, all other postal symbologies should be turned off.

### U.S. Postal Service POSTNET Code

In the Matrix/Postal tab of Visual Menu, choose Postnet Decoding On under Postal Code. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

On



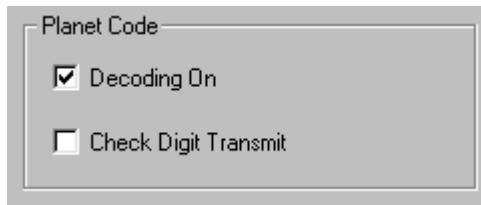
Off\*



---

## **Planet Code**

In the Matrix/Postal tab of Visual Menu, choose Decoding On under Planet Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

On



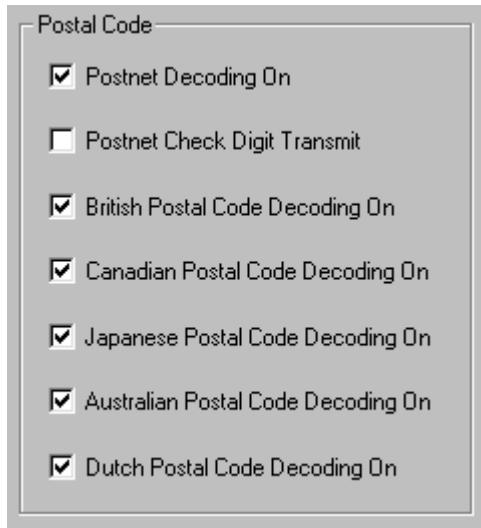
Off\*



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## **British Post Office 4 State Code**

In the Matrix/Postal tab of Visual Menu, choose British Postal Code Decoding On under Postal Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

On



Off\*



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### **Canadian 4 State Code**

In the Matrix/Postal tab of Visual Menu, choose Canadian Postal Code Decoding On under Postal Code. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

On



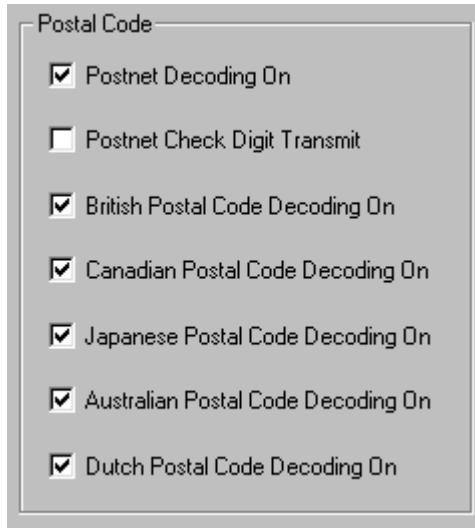
Off\*



---

## **Dutch Postal Code**

In the Matrix/Postal tab of Visual Menu, choose Dutch Postal Code Decoding On under Postal Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

On



Off\*



## Australian 4 State Code

In the Matrix/Postal tab of Visual Menu, choose Australian Postal Code Decoding On under Postal Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

On



Off\*



---

## **Japanese Postal Service**

In the Matrix/Postal tab of Visual Menu, choose Japanese Postal Code Decoding On under Postal Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default settings are marked with an asterisk (\*).

On



Off\*



## **2D Matrix Symbolologies**

---

The 2D matrix symbolologies are the most efficient at storing large amounts of data, have high security features, and have an embedded finder pattern. This section provides codes for the following symbolologies:

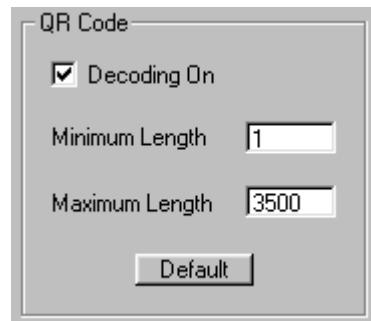
- QR Code
- Data Matrix
- MaxiCode
- Aztec Code
- VeriCode

---

### **QR Code**

For the default settings, see Chapter 7, “Default Charts.”

In the Matrix/Postal tab of Visual Menu, click Default under QR Code. Click the Write Settings to Device button () to send the new setting to the imager.



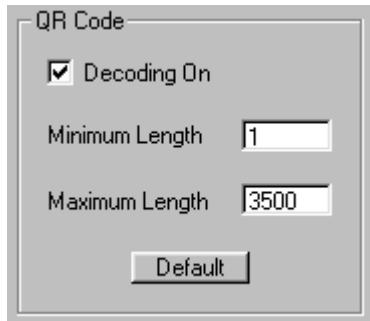
Or scan the following bar code.

Default All QR Code Settings



### **QR Code On/Off**

In the Matrix/Postal tab of Visual Menu, choose Decoding On under QR Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

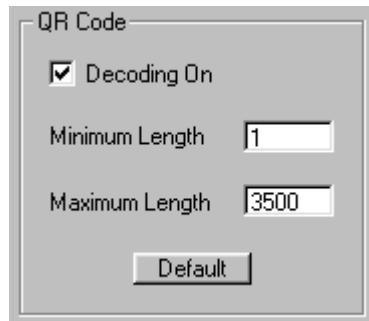
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Matrix/Postal tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under QR Code. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length

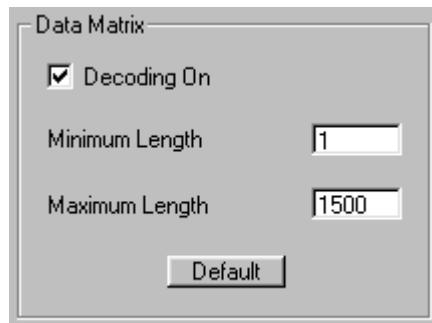


The desired message length and Save must be input after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

## Data Matrix

For the default settings, see Chapter 7, “Default Charts.”

In the Matrix/Postal tab of Visual Menu, click Default under Data Matrix. Click the Write Settings to Device button () to send the new setting to the imager.



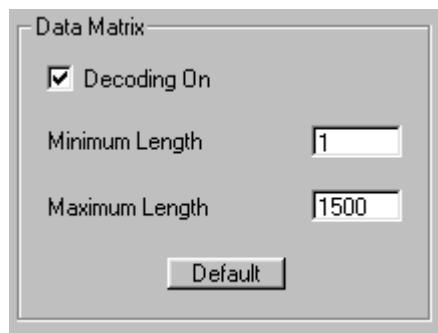
Or scan the following bar code.

Default All Data Matrix Settings



### **Data Matrix On/Off**

In the Matrix/Postal tab of Visual Menu, choose Decoding On under Data Matrix. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

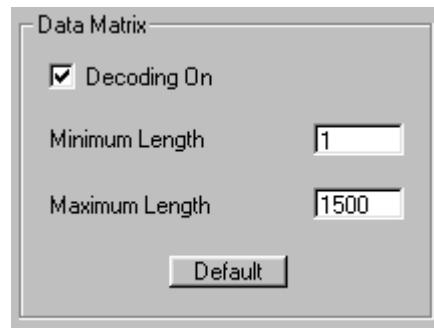
Minimum length = 09   Maximum length = 20

**Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Matrix/Postal tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Data Matrix. Click the Write Settings to Device button () to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



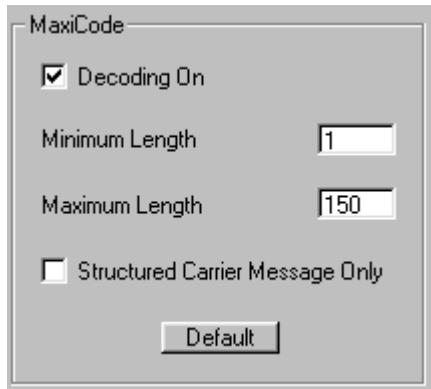
The desired message length and Save must be input after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

---

## **MaxiCode**

For the default settings, see Chapter 7, "Default Charts."

In the Matrix/Postal tab of Visual Menu, click Default under MaxiCode. Click the Write Settings to Device button (  ) to send the new setting to the imager.



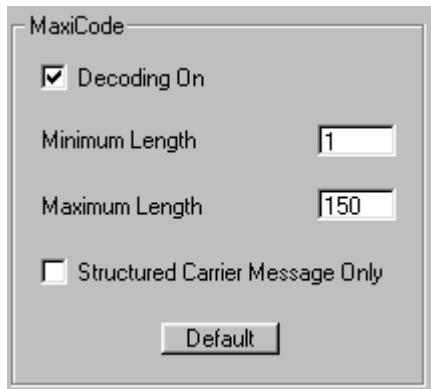
Or scan the following bar code.

Default All MaxiCode Settings



### **MaxiCode On/Off**

In the Matrix/Postal tab of Visual Menu, choose Decoding On under MaxiCode. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



### **Message Length**

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### **Example**

Decode only those bar codes with a count of 9-20 characters.

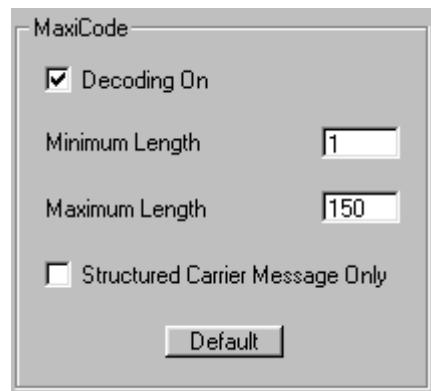
Minimum length = 09   Maximum length = 20

#### **Example**

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Matrix/Postal tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under MaxiCode. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length

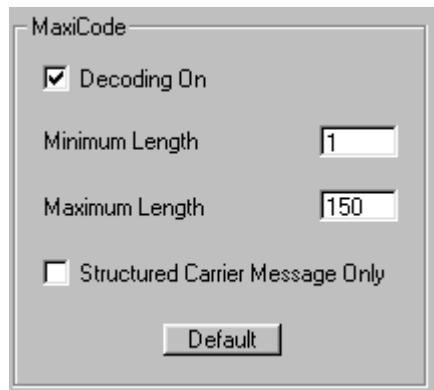


The desired message length and Save must be input after reading this programming bar code. Refer to the "General Programming Chart" in Appendix B.

### ***Structured Carrier Message Only***

A MaxiCode is made up of a primary and secondary message. The primary portion, also known as the "structured carrier message," contains information of primary importance, such as package destination. The secondary portion contains less important data, such as package weight. If your application requires only the primary data from MaxiCodes, turn Structured Carrier Message Only On. Turn this feature on if you are trying to read a damaged MaxiCode. The imager may be able to extract just the structured carrier message if the center portion of the code is intact.

In the Matrix/Postal tab of Visual Menu, choose Structured Carrier Message Only under MaxiCode. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



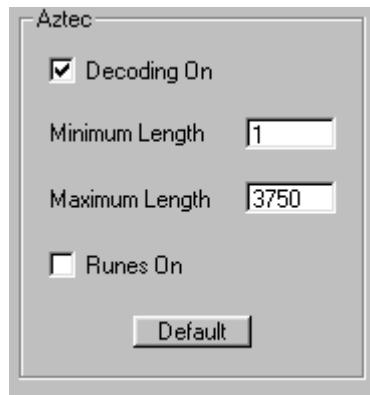
Off\*



## Aztec Code

For the default settings, see Chapter 7, “Default Charts.”

In the Matrix/Postal tab of Visual Menu, click Default under Aztec. Click the Write Settings to Device button (  ) to send the new setting to the imager.



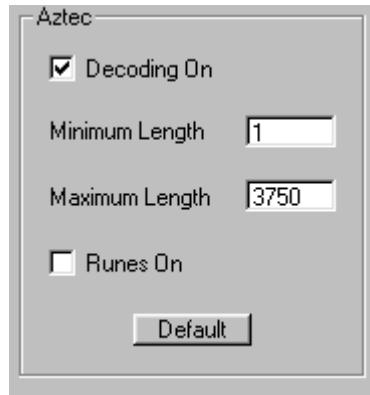
Or scan the following bar code.

Default All Aztec Code Settings



### Aztec Code On/Off

In the Matrix/Postal tab of Visual Menu, choose Decoding On under Aztec. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On\*



Off



### ***Message Length***

The message length selection is used to set the valid reading length of the bar code. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This configuration helps reduce the chances of a misread.

#### ***Example***

Decode only those bar codes with a count of 9-20 characters.

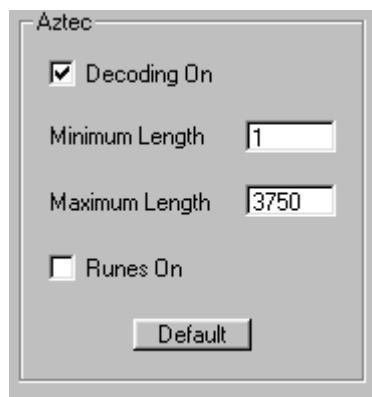
Minimum length = 09   Maximum length = 20

#### ***Example***

Decode only those bar codes with a count of 15 characters.

Minimum length = 15   Maximum length = 15

In the Matrix/Postal tab of Visual Menu, enter the minimum message length in the Minimum Length field and the maximum message length in the Maximum Length field under Aztec. Click the Write Settings to Device button ( ) to send the new setting to the imager.



Or scan one of the following bar codes.

Minimum Message Length



Maximum Message Length



A one- to two-digit number and Save are required after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

---

## ***VeriCode***



**Note:** VeriCode is a proprietary symbology, licensed to its users by Veritec, Inc. This symbology is not available in standard 147X products and may only be ordered by licensed users as a custom 6-digit part number.

Visual Menu cannot configure VeriCode.

For the default settings, see Chapter 7, “Default Charts.”

Default All VeriCode Settings



### ***VeriCode On/Off***

On



Off



### **VeriCode Size**

This selection allows you to program the imager to read fixed VeriCode bar code sizes. If your application requires that the imager read one fixed size, scan one of the Size menu bar codes and the size (from 10 to 48, even numbers only). The size you set will be the only one turned on. If you need more sizes turned on (up to 3), scan another Size menu bar code and the required size(s). The default is 0 or Off (all sizes turned on).

Size A



Size B



Size C



Size D



Size E



A one- to two-digit number and Save are required after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

## **Diagnostics**

---

This section includes codes and information for the Test Menu and 2D Scan Diagnostics.

---

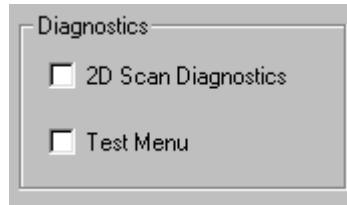
### **Test Menu**

When you set Test Menu On then scan a programming code in this manual, the imager displays the content of a programming code. The programming function will still occur, but in addition, the content of that programming code is output to the terminal. You may wish to use this feature in conjunction with QuickView. For information on QuickView, see Chapter 5, “Using QuickView.”



**Note:** This feature should not be used during normal imager operation.

In the Imager tab of Visual Menu, choose Test Menu under Diagnostics. Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On



Off\*



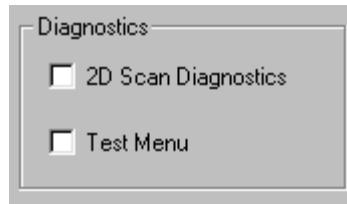
---

## **2D Scan Diagnostics**

When turned on, 2D Scan Diagnostics display information about symbologies as codes are scanned. Your terminal displays the diagnostic information first, then the data from the scanned code.

In the Imager tab of Visual Menu, choose 2D Scan Diagnostics under Diagnostics.

Click the Write Settings to Device button (  ) to send the new setting to the imager.



Or scan one of the following bar codes. The default setting is marked with an asterisk (\*).

On

Off\*



The following list shows the information that appears for each type of symbology.



**Note:** The higher the percentage of unused error correction (UEC), the easier it should be to read each code.

**Aztec Code: x layers, xx data & xx chks in GF(xxx), UEC = xxx%**

Layers = Aztec properties

Data = Number of data words

Chks = Number of check words

UEC = Unused Error Correction

**PDF 417: x rows, x cols, xx data & xx chks (ECL = x), UEC = xxx%**

Rows = Number of rows

Cols = Number of columns

Data = Number of data words

Chks = Number of check words

ECL = Error Correction Level

UEC = Unused Error Correction

**Data Matrix: ECC xxx, 20 x 20, UEC = xxx%**

ECC = Error Checking and Correction

20 x 20 = Bar code size in modules

UEC = Unused Error Correction

**MaxiCode: Mode x, UEC = xxx%**

Mode x = Code structure definition

UEC = Unused Error Correction

***Micro PDF 417: x rows, x cols, xx data & xx chks, UEC = xxx%***

Rows = Number of rows

Cols = Number of columns

Data = Number of data words

Chks = Number of check words

UEC = Unused Error Correction

***QR Code: Model x, Version x, ECL x, Mask x, UEC = xxx%***

Model = Code capacity specification

Version = Code structure definition

ECL = Error Correction Level

Mask = Mask pattern specification

UEC = Unused Error Correction



5

## ***Using QuickView***



*This chapter explains how to use the QuickView application to configure the 147X imager.*

## **QuickView Demonstration Software Instructions**

---

QuickView is a Microsoft Windows program that displays decoded bar code messages and captures images (for instance, ID photographs) from the 1470/1471 imager. Bar code information and images are displayed in the QuickView window.

### ***Installing QuickView***

1. Close all applications.
2. Place the CD-ROM that shipped with the 147X imager into your CD-ROM drive. Your Web browser opens.
3. Choose a language for the screens to appear in.
4. Click the ScanImage 1470/1471 picture.
5. Click Software.
6. Click Install QuickView.
7. Choose Run this program from its current location and click OK.
8. Click Yes.
9. Follow the prompts through the Visual Menu install shield.



**Note:** If you wish, you can create a shortcut to the QuickView executable on your desktop.

---

## **Temporary Keyboard Wedge QuickView Configuration**

For a quick download communication configuration, scan the QuickView bar code and the imager will be temporarily configured for QuickView settings.



**Note:** If you have an imager capable of keyboard wedge mode, scan the bar code below and the imager will communicate in RS-232 mode, allowing it to work with QuickView. To convert the imager back to keyboard wedge communication, cycle the power.

QuickView

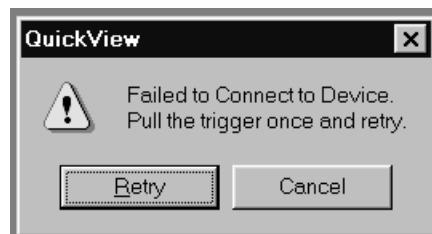


---

## **Using the QuickView Software**

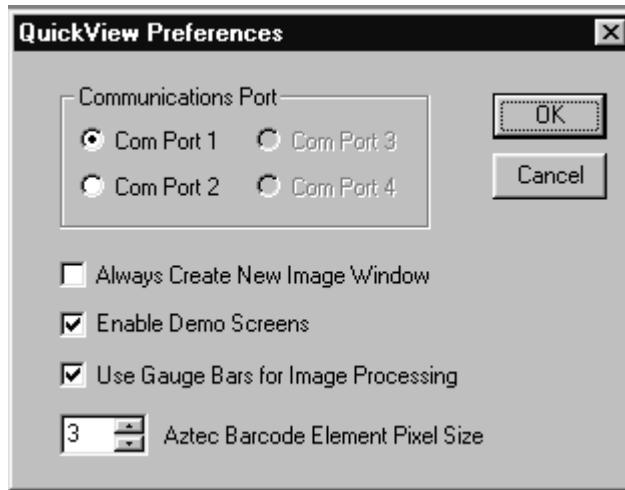
Upon startup, the QuickView splash screen appears for approximately 3 seconds. QuickView will then attempt to establish communications with the imager.

This message appears if communication cannot be established:



### To reestablish communications

1. QuickView defaults to COM1 as the Communications port. If you have plugged the imager into another COM port, you must Cancel out of this message.
2. Click File and select Preferences. This dialog box appears:



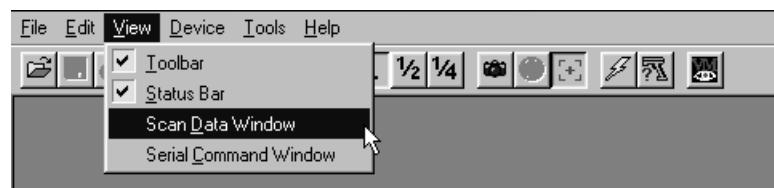
3. Click the radio button for the appropriate COM port then click OK.
4. Pull the trigger on the imager. QuickView should now be able to locate the imager.

If you want QuickView to search for the imager and establish communication, click Device and select Auto Baud Detect.

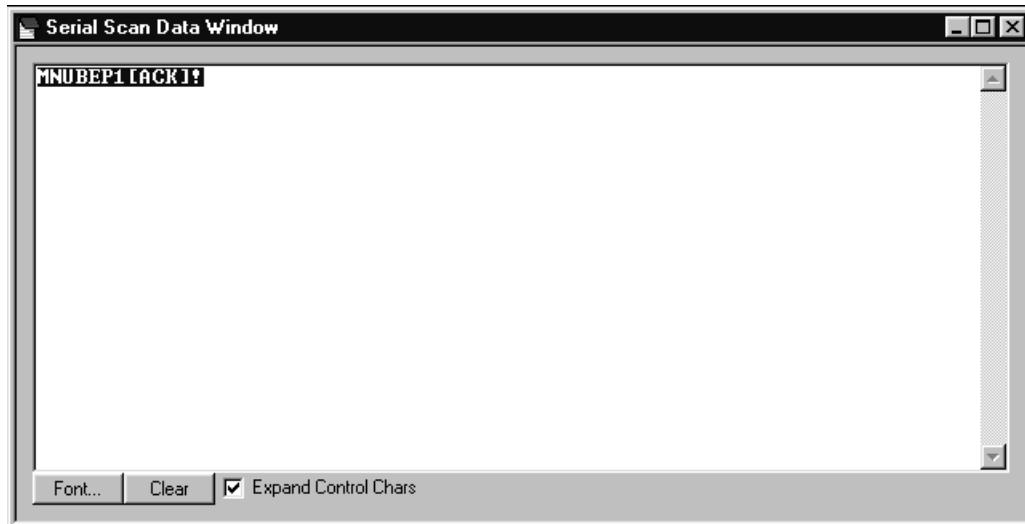
---

### Scan Data Window

Once successful communication has been established, you can scan codes and display the bar code data in a window. Select View then Scan Data Window.



As you scan bar codes, the data appears in the Serial Scan Data Window.



You can alter the font in this window by using the Font button or clear all data in the window with the Clear button.

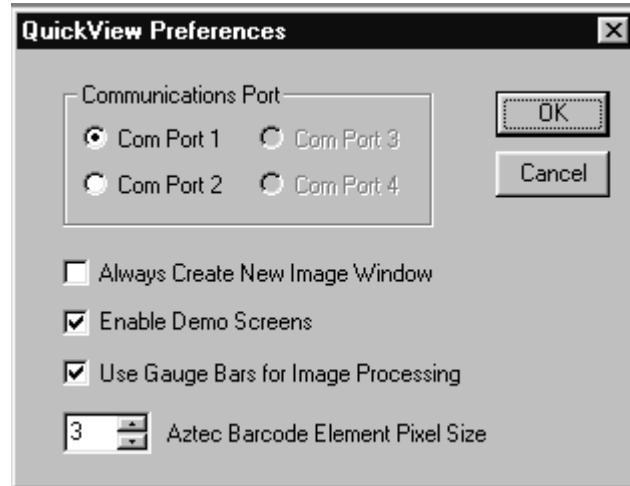
If you wish to see the mnemonic for any embedded control characters, you should put a check in the check box for Expand Control Chars (the default setting). If you wish to see the ASCII control character rather than the mnemonic, turn off this check box.



**Note:** The ASCII control character that is displayed is dependent on the font you are using.

## Demo Screens

To present a demo, you must set your File - Preferences to Enable Demo Screens.



Once the demo screens are enabled, scan the demo bar codes on the following pages. To disable the demo screens, click on the check box to remove the checkmark.

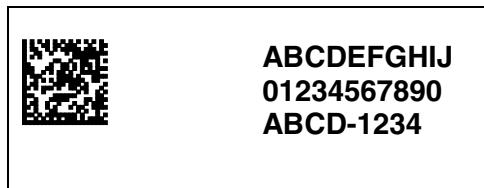
### ***Electronic Parts Manufacturing Demonstration***

The manufacturing industry represents the fastest growing market for high capacity bar codes by recognizing the long term benefits associated with having complete information on a product at all times. In this demonstration, high capacity codes are used to issue parts to a manufacturing floor. By using a high capacity code, complete information about the parts ensures that the right parts are issued and billed to the proper location. Intermec offers both standard-range and high-density models of the 1470 to provide the optimal hand-held solution for a wide variety of manufacturing operations.

## **1470/1471 Imager User's Manual**

Scan the following bar code to display a sample screen for a manufacturing application.

### **Data Matrix Codes**



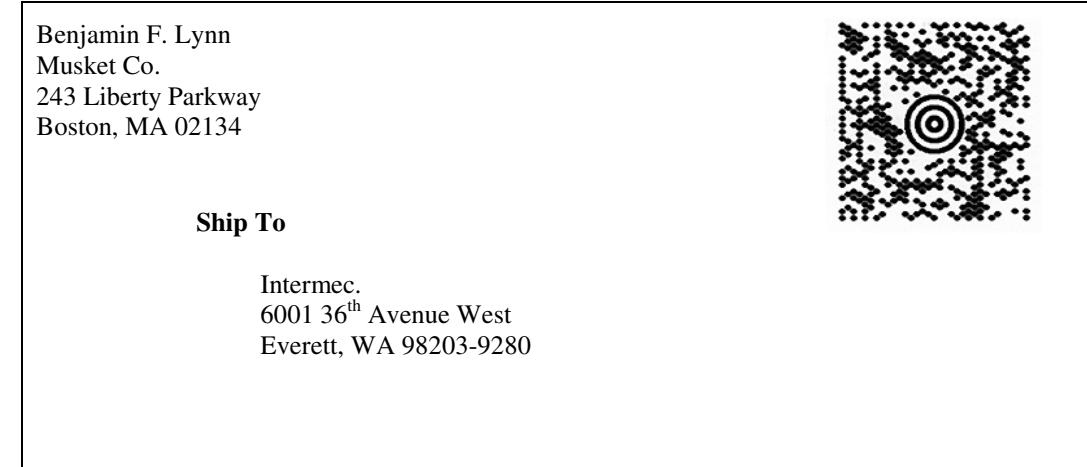
### ***Shipping Demonstration***



**Note:** This demonstration is appropriate for the 1470B00 only.

In an effort to reduce costs through distribution center automation, United Parcel Service (UPS) is printing a MaxiCode label on every package shipped worldwide. In this demonstration, the 1470 imager provides a cost-effective solution for UPS personnel in hand sorting operations and for customers who want to take advantage of the savings associated with MaxiCode without incurring the cost of an over-the-belt scanning solution.

Scan the following bar code to display a sample screen for a shipping application.



### ***Patient Registration Demonstration***

Health care professionals can use two-dimensional symbologies for patient applications. In this demonstration, patient registration information is encoded on an identification card that is scanned each time the patient arrives for treatment. Both the health care professional and the patient benefit from the enhanced accuracy, efficiency, and security that photo identification provides.

Scan each of the following bar codes to display sample screens for this type of patient application.

**Patient Registration Demonstration (continued)**

Place Photo Here



Patient ID:890-66-4589

Mason, Theresa  
5 Beach Front Drive  
Pensacola, FL 49607



Place Photo Here



Patient ID:123-45-4569

Ely, Gerald  
5 Quarry Rd.  
Omaha, NE 12345



### **Bills of Lading Demonstration**



**Note:** This demonstration is appropriate for the 147XB00 only.

Multiple linear bar codes may be replaced in a bill of lading/inventory application. In this demonstration, an individual linear code would typically be used for each part number, description, and quantity, as well as for customer and order number information. If linear codes were used for the bill of lading shown below, the user would have to scan 14 individual bar codes before moving on to the next package.

Order #: 99999	Intermec Technologies Corp. 6001 36 <sup>th</sup> Avenue West P.O. Box 4280 Everett, WA 98203-9280			
<b>Ship to:</b>				
ABC Company 123 Highway West San Diego, CA 92100				
<b>Customer #:</b>	1234567890			
<b>Pick Date:</b>	March 4, 1998			
<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>		
3000-12C	3000PDF	3		
6720/B	SCANNER	4		
54/57/UG	54/57/UG	3		
42204062	CABLE	1		

By taking advantage of the enhanced data capacity of PDF 417, the user is able to encode all the required information in a single bar code label. Using the imager and a two-dimensional symbology, the user gets complete information in a single scan.

Scan this bar code to display a sample screen for this bill of lading application.

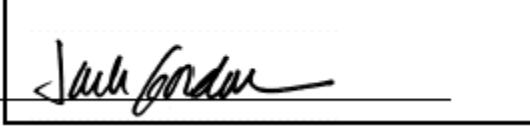


### **Signature Capture Demonstration**



**Note:** This demonstration is appropriate for the 147XB00 only.

The signature capture demo is performed by scanning the Aztec bar code below the signature box. The Aztec bar code commands the imager to capture the image of the signature box and its contents and send this image to the host system running QuickView.

PAUL'S QUICK MART MAIN ST. NEW YORK, NEW YORK 315-123-4567 1122-3344-5678	
THU, MAR 04, 1999 09=34B	
*** CREDIT CARD ***	
CARD NO:	00234567899876543
EXP DATE:	0100
CARD TYPE:	MC - CREDIT
TR TYPE:	SALE
APP CODE:	004910
REC NO:	c009
<b>TOTAL:</b>	<b>\$37.99</b>
Sign	
	

---

## **Snapshot**

You may also use the 147X to capture an image. Click on Device - Snapshot, or click on the camera icon ( ) in the button bar to activate this feature.

Select the resolution you wish to use for this image, either Full, Half, or Quarter Resolution. (These can also be selected by clicking on the 1, 1/2, or 1/4 buttons ( ) in the button bar.)



**Note:** If the resolution is higher, the image is sharper and the size of the resulting file is larger. Higher resolution images also take longer to process.



You must also select whether you wish to capture the image in Gray Scale ( ) or in Black & White ( ).



**Note:** If you need to see exactly what the imager sees (for example, if you are diagnosing a bar code), you should set the image to Black & White.

If you want the imager to display illuminated aiming brackets, click on Device - Snapshot Properties - Use Aimer During Image Capture, or click on the aimer icon ( ) in the button bar.

Pull the imager's trigger to capture an image. Captured images appear in the QuickView window.



As you move the mouse over the image, the cursor changes to a magnifying glass. Left click to zoom in to the image, right click to zoom out.

### To save an image file as a bitmap

1. Choose File - Save As.
2. Enter the location and file name you wish to use for this file.
3. Click Save and a bitmap file is saved.

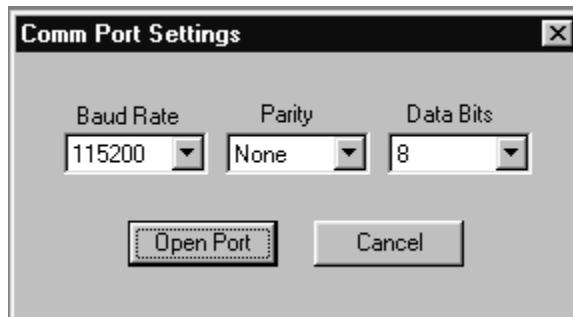
---

### **Open COM Port**

The following procedure explains how to open a COM port that does not have a device attached.

### To open a COM port

1. Choose File - Open Com Port. This dialog box appears:



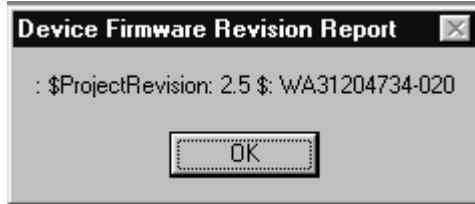
2. Click the arrows to select the Baud Rate, Parity, and Data Bits for the COM port you wish to open.
3. Click Open Port and QuickView opens the COM port whether or not there is a device attached. This feature may be beneficial when troubleshooting a device.

---

## **Reporting Firmware Revision**

To find out what software version the imager is using, choose Device - Report Device Firmware Revision, or click the imager icon ( ) in the button bar.

This popup lists the firmware information:



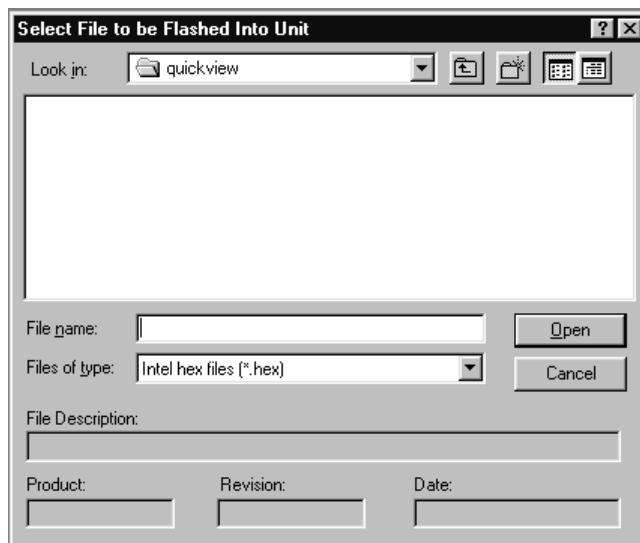
---

## **Load New Imager Software**

The following procedure explains how to load a new software file into the imager's ROM.

### **To load new imager software**

1. Choose Device - Load Firmware File into ROM or click on the lightning flash icon ( ) in the button bar.
2. Select the hex file and click Open. QuickView flashes the new software into your imager's ROM.



## Imager Power Settings

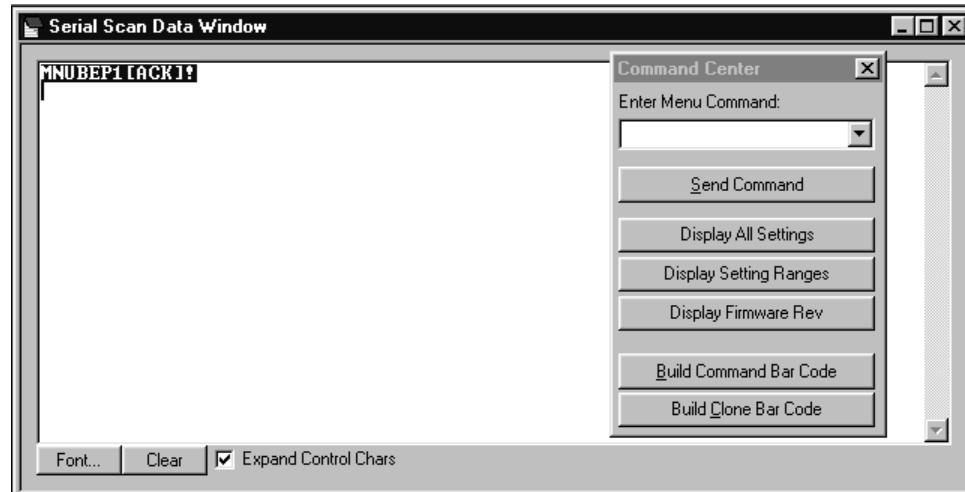
By default, the imager will power down after 2 minutes of inactivity. If you wish to keep the imager powered up indefinitely, choose Device - Hold Power. To reset the imager to the default power setting, choose Device - Remove Power Hold.

## Trigger Settings

If you wish to control the imager's trigger with the software, you can select Device - Trigger On or Device - Trigger Off. These settings turn the trigger on and off just as if you were holding the trigger or releasing it manually. This feature may be necessary when working with a fixed device that has no trigger.

## RS-232 Serial Commands

Choose View - Serial Command Window to display the Command Center window, which allows you to enter serial commands to the imager. Choose View - Scan Data Window to open a window that displays serial data in a text format.



Serial commands are used to program the imager and to query the imager about programming parameters. For a list of the serial programming commands, see “Serial Programming Commands” later in this section. For information about performing queries, see “Query Commands” later in this chapter.

---

## **Using Serial Programming Commands**

The serial programming commands can be used in place of the programming bar codes listed in Chapter 3. Both the serial commands and the programming bar codes will program the imager. For complete descriptions and examples of each programming command, refer to Chapter 3.

To enter a serial command, click in the Enter Menu Command text box and type in the command(s) you wish to use. If you are typing in more than one command, separate the commands with a semicolon (;). Click Send Command to send the command(s) to the imager.

### **Responses**

The imager responds to serial commands with one of three responses:

- |     |  |
|-----|--|
| ACK | Indicates a good command that has been processed.  |
| ENQ | Indicates a bad command.   |
| NAK | Indicates the command was good, but the entry was out of the allowable range, e.g., an entry for a minimum message length of 100 when the field will only accept 2 characters. |

### **Command Center Buttons**



**Display All Settings** Displays the settings currently saved for the imager.

**Display Setting Ranges** Displays all the possible serial commands and the allowable data field parameters.

**Display Firmware Rev** Displays the software version being used by the imager.

**Build Command Bar Code** Use to create an Aztec code from a command or set of commands entered in the Serial Window. (The size of the Aztec code can be altered using the File - Preferences selection.) You can then print out this bar code to program other imagers.

**Build Clone Bar Code** Use to capture the settings from one imager and to input them to another imager. When the Build Clone Bar Code button is clicked, QuickView captures the settings from the attached imager and creates an Aztec code that can be printed. (The size of the Aztec code can be altered using the File - Preferences selection.) Any imager that scans the resulting clone bar code will be programmed to the same settings as the original imager.

## Serial Programming Commands



**Note:** In the following table, an asterisk (\*) indicates the default setting.

Selection	Setting	Serial Command
Factory Default Settings Show		DEFALT.
<b>Status Check</b>		
Software Revision		REV?.
Default Show Data Formats		DFMBK3?.
Enable All Symbologies		ALLEN1.
Disable All Symbologies		ALLEN0.
<b>Output Selections</b>		
Power PC Revision		REVMPC.
Boot Code Revision		REV_BT.
Terminal ID		TERMID.
Keyboard Country		KBDCTY.
Keyboard Style	Regular	KBDSTY0.
	Caps Lock	KBDSTY1.
	Shift Lock	KBDSTY2.
	Emulate External Keyboard	KBDSTY5.
	Automatic Caps Lock	KBDSTY6.

---

**Serial Programming Commands (continued)**

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
Keyboard Modifiers	*Control + ASCII Off	KBDCAS0.
	Control + ASCII On	KBDCAS1.
	*Turbo Mode Off	KBDTMD0.
	Turbo Mode On	KBDTMD1.
	*Numeric Keypad Off	KBDNPS0.
	Numeric Keypad On	KBDNPS1.
	*Auto Direct Conn. Off	KBDADC0.
	Auto Direct Conn. On	KBDADC1.
<b>Communication Settings</b>		
*Default All RS-232		232DFT.
Communication Settings		
Parity	*None	232PARN.
	Mark	232PARM.
	Space	232PARS.
	Odd	232PARO.
	Even	232PARE.
Baud Rate	*38400 BPS	232BDR38400.
	300 BPS	232BDR300.
	600 BPS	232BDR600.
	1200 BPS	232BDR1200.
	2400 BPS	232BDR2400.
	4800 BPS	232BDR4800.
	9600 BPS	232BDR9600.
	19200 BPS	232BDR19200.
	57600 BPS	232BDR57600.
	115200 BPS	232BDR115200.
Word Length Data Bits	*8 Data Bits	232LEN8.
	7 Data Bits	232LEN7.
Word Length Stop Bits	*1 Stop Bit	232STP1.
	2 Stop Bits	232STP2.

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
Hardware Flow Control	*Off	232CTS0.
	On	232CTS1.
Software Flow Control	*Off	232SFL0.
	On	232SFL1.
Serial Triggering	*Off	TRGSER0.
	On	TRGSER1.
	*Trigger Defaults	TRGDFT.
	Trigger On	TRG_ON.
	Trigger Off	TRGOFF.
Hardware Triggering	Trigger Mode	HWTRIG1.
	Power Hold Mode	HWTRIG0.

**Imager Selections**

Power Saving Mode	*Normal Power	PWRDFT; SCNLEDHIGH; HSTSSS0.
	Low Power	PWRTIM0,TRG0, IMG1;SCNLEDLOW; HSTSSS1.
	Medium Power	PWRTIM10000, TRG0,IMG1; SCNLEDHIGH; HSTSSS0.
Power Hold Mode	On	PWR_ON1.
	*Off	PWR_ON0.
LED Power	*High	SCNLEDHIGH.
	Off	SCNLEDOFF.
	Low	SCNLEDLOW.
LED Flashing	*On	HSTLED0.
	Off	HSTLED1.
Aimer Delay	*Off (no delay)	HSTAIM0.
	200 milliseconds	HSTAIM200.
	400 milliseconds	HSTAIM400.
Trigger Timeout	Set Timeout	HSTTIM.

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
Aimer Interval	*Every Read	HSTINT1.
	Every 2nd Read	HSTINT2.
	Every 3rd Read	HSTINT3.
	Every "x" Read	HSTINT.
	Off	HSTINT0.
Scan Stand	*Off	SSTMOD0.
	On	SSTMOD1.
Scan Stand LED Intensity	15	SSTFRQ.
Scan Stand Lights	*On	SSTLON1.
	Off	SSTLON0.
Presentation Mode	On	PRSMOD1.
	*Off	PRSMOD0.
Presentation Reread Delay	500 ms	PRSTIM.
Presentation Lights	*On	PRSLON1.
	Off	PRSLON0.
Presentation Default		PRSDFT.
<b>Output Selections</b>		
Beeper Volume	*High	BEPVOL50.
	Medium	BEPVOL25.
	Low	BEPVOL5.
	Off	BEPVOL0.
Power Up Beeper	*On	BEPRST1.
	Off	BEPRST0.
Output Sequence Beeper	*On	BEPCLK1.
	Off	BEPCLK0.
Beep On Decode	*On	BEPDEC1.
Beeper Volume	Off	BEPDECO.
Beeper Default		BEPDFT.
Intercharacter Delay		DLYCHR.
Interfunction Delay		DLYFNC.
Intermessage Delay		DLYMSG.

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
<b>Prefix/Suffix Selections</b>		
Add CR Suffix to All Symbologies		SUFBK2990D.
Add Code I.D. Prefix to All Symbologies		PREBK2995C80.
Add AIM I.D. Prefix to All Symbologies		PREBK2995C81.
Prefix	Add Prefix	PREBK2.
	Clear One Prefix	PRECL2.
	Clear All Prefixes	PRECA2.
Save Current Prefix Changes		MNUSAV.
Discard Current Prefix Changes		MNUABT.
Suffix	Add Suffix	SUFBK2.
	Clear One Suffix	SUFCL2.
	Clear All Suffixes	SUFCA2.
Save Current Suffix Changes		MNUSAV.
Discard Current Suffix Changes		MNUABT.
<b>Data Formatter Selections</b>		
Data Format Editor	*No Format	DFMDF3.
	Enter Format	DFMBK3.
	Clear One Format	DFMCL3.
	Clear All Formats	DFMCA3.
Save Current Data Format Changes		MNUSAV.
Discard Current Data Format Changes		MNUABT.
Data Formatter	*On	DFM_EN1.
	Off	DFM_EN0.
Require Data Format	Require	DFM_EN2.
Show Data Formats		DFMBK3?.
Alternate Data Formats	1	VSAF_1.
	2	VSAF_2.
	3	VSAF_3.

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
<b>Output Sequence Selections</b>		
Require Output Sequence	Require *On/Not Required Off	SEQ_EN2. SEQ_EN1. SEQ_EN0.
Output Sequence Editor	*Default Sequence Enter Sequence	SEQDFT. SEQBLK.
Save Current Sequence Changes		MNUSAV.
Discard Current Sequence Changes		MNUABT.
Multiple Bar Codes	*Off On	SHOTGN0. SHOTGN1.
No Read	*Off On	SHWRD0. SHWRD1.
Print Weight	Default	PRTWGT4.
Set Print Weight		PRTWGT.
Function Code Transmit	Off *On	RMVFNC1. RMVFNC0.
<b>Linear Symbology Selections</b>		
Codabar	*Default All Codabar Settings*	CBRDFT.
Codabar	*On Off	CBRENA1. CBRENA0.
Codabar Start/Stop Char.	*Don't Transmit Transmit	CBRSSX0. CBRSSX1.
Codabar Message Length	Minimum Maximum	CBRMIN. CBRMAX.
Codabar Check Char.	*No Check Char. Validate, But Don't Transmit Validate, and Transmit	CBRCK20. CBRCK21. CBRCK22.
Code 39	*Default All Code 39 Settings*	C39DFT.
Code 39	*On Off	C39ENA1. C39ENA0.

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
Code 39 Start/Stop Char.	*Don't Transmit Transmit	C39SSX0. C39SSX1.
Code 39 Full ASCII	*Off On	C39ASC0. C39ASC1.
Code 39 Message Length	Minimum Maximum	C39MIN. C39MAX.
Code 39 Check Char.	*No Check Char. Validate, But Don't Transmit Validate, and Transmit	C39CK20. C39CK21. C39CK22.
Code 11	*Default All Code 11 Settings*	C11DFT.
Code 11	On *Off	C11ENA1. C11ENA0.
Code 11 Message Length	Minimum Maximum	C11MIN. C11MAX.
Code 11 Check Digits Required	1 Check Digit *2 Check Digits	C11NCK0. C11NCK1.
Interleaved 2 of 5	*Default All Interleaved 2 of 5 Settings*	I25DFT.
Interleaved 2 of 5	*On Off	I25ENA1. I25ENA0.
Interleaved 2 of 5 Message Length	Minimum Maximum	I25MIN. I25MAX.
Interleaved 2 of 5 Check Digit	*No Check Char. Validate, But Don't Transmit Validate, and Transmit	I25CK20. I25CK21. I25CK22.
IATA 2 of 5	*Default All IATA 2 of 5 Settings*	A25DFT.
IATA 2 of 5	On *Off	A25ENA1. A25ENA0.
IATA 2 of 5 Message Length	Minimum Maximum	A25MIN. A25MAX.
MSI	*Default All MSI Settings*	MSIDFT.

---

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
MSI	On	MSIENA1.
	*Off	MSIENA0.
MSI Message Length	Minimum	MSIMIN.
	Maximum	MSIMAX.
MSI Check Digit	Transmit	MSICKX0.
	*Don't Transmit	MSICKX1.
Code 93	*Default All Code 93 Settings*	C93DFT.
Code 93	On	C93ENA1.
	*Off	C93ENA0.
Code 93 Message Length	Minimum	C93MIN.
	Maximum	C93MAX.
Code 128	*Default All Code 128 Settings*	128DFT.
Code 128	*On	128ENA1.
	Off	128ENA0.
Code 128 Message Length	Minimum	128MIN.
	Maximum	128MAX.
Code 128 Include	*Off	128FNC0.
Code 128 ISBT	*Off	ISBENA0.
	On	ISBENA1.
EAN/JAN 8	*Default All EAN/ JAN 8 Settings*	EA8DFT.
EAN/JAN 8	On	EA8ENA1.
	*Off	EA8ENA0.
EAN/JAN 8 Check Digit	*Don't Transmit	EA8CKX0.
	Transmit	EA8CKX1.
EAN/JAN 8 2 Digit Addenda	*Off	EA8AD20.
	On	EA8AD21.
EAN/JAN 8 5 Digit Addenda	*Off	EA8AD50.
	On	EA8AD51.
EAN/JAN 8 Addenda Required	*Not Required	EA8ARQ0.
	Required	EA8ARQ1.

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
EAN/JAN 8 Addenda Separator	*No Space	EA8ADS0.
	Space	EA8ADS1.
EAN/JAN 13	*Default All EAN/ JAN 13 Settings*	E13DFT.
EAN/JAN 13	*On	E13ENA1.
	Off	E13ENA0.
EAN/JAN 13 Check Digit	*Don't Transmit	E13CKX0.
	Transmit	E13CKX1.
EAN/JAN 13 2 Digit Addenda	*Off	E13AD20.
	On	E13AD21.
EAN/JAN 13 5 Digit Addenda	*Off	E13AD50.
	On	E13AD51.
EAN/JAN 13 Addenda Required	*Not Required	E13ARQ0.
	Required	E13ARQ1.
EAN/JAN 13 Addenda Separator	*No Space	E13ADS0.
	Space	E13ADS1.
UPC A	*Default All UPC A Settings*	UPADFT.
UPC A	*On	UPAENA1.
	Off	UPAENA0.
UPC A Check Digit	*Don't Transmit	UPACKX0.
	Transmit	UPACKX1.
UPC A Number System	Don't Transmit	UPANSX0.
	*Transmit	UPANSX1.
UPC A 2 Digit Addenda	*Off	UPAAD20.
	On	UPAAD21.
UPC A 5 Digit Addenda	*Off	UPAAD50.
	On	UPAAD51.
UPC A Addenda Required	*Not Required	UPAARQ0.
	Required	UPAARQ1.
UPC A Addenda Separator	*No Space	UPAADS0.
	Space	UPAADS1.
UPC E0	*Default All UPC E0 Settings*	UE0DFT.

---

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
UPC E0	On	UE0ENA1.
	*Off	UE0ENA0.
UPC E0 Check Digit	*Don't Transmit	UE0CKX0.
	Transmit	UE0CKX1.
UPC E0 Number System	*Don't Transmit	UE0NSX0.
	Transmit	UE0NSX1.
UPC E0 Version E Expand	*Don't Expand	UE0EXP0.
	Expand	UE0EXP1.
UPC E1	On	UE1ENA1.
	*Off	UE1ENA0.
UPC E0/E1 2 Digit Addenda	*Off	UPEAD20.
	On	UPEAD21.
UPC E0/E1 5 Digit Addenda	*Off	UPEAD50.
	On	UPEAD51.
UPC E0/E1 Addenda Required	*Not Required	UPEARQ0.
	Required	UPEARQ1.
UPC E0/E1 Addenda Separator	*No Space	UPEADSO.
	Space	UPEADS1.
RSS-14	*Default All RSS-14 Settings*	RSSDFT.
RSS-14	On	RSSENA1.
	*Off	RSSENA0.
RSS-14 Limited	*Default All RSS-14 Limited Settings*	RSLDFT.
RSS-14 Limited	On	RSLENA1.
	*Off	RSLENA0.
RSS-14 Expanded	*Default All RSS-14 Expanded Settings*	RSEDFT.
RSS Expanded	On	RSEENA1.
	*Off	RSEENA0.
RSS Expanded Msg. Length	Minimum	RSEMIN.
	Maximum	RSEMAX.

***Serial Programming Commands (continued)***

Selection	Setting	Serial Command
<b>Stacked Symbology Selections</b>		
Codablock	*Default All Codablock Settings*	CBFDFT.
Codablock	On	CBFENA1.
	*Off	CBFENA0.
Codablock Msg. Length	Minimum	CBFMIN.
	Maximum	CBFMAX.
PDF 417	*Default All PDF 417 Settings*	PDFDFT.
PDF 417	*On	PDFENA1.
	Off	PDFENA0.
PDF 417 Message Length	Minimum	PDFMIN.
	Maximum	PDFMAX.
Micro PDF 417	*Default All Micro PDF Settings*	MPDDFT.
Micro PDF 417	*On	MPDENA1.
	Off	MPDENA0.
Micro PDF 417 Message Length	Minimum	MPDMIN.
	Maximum	MPDMAX.
Code 49	*Default All Code 49 Settings*	C49DFT.
Code 49	On	C49ENA1.
	*Off	C49ENA0.
Code 49 Msg. Length	Minimum	C49MIN.
	Maximum	C49MAX.
Composite Codes	On	COMENA1.
	*Off	COMENA0.
Composite Msg. Length	Minimum	COMMIN.
	Maximum	COMMAX.
<b>Postal Symbology Selections</b>		
POSTNET Code (USPS)	On	NETENA1.
	*Off	NETENA0.
POSTNET Check Digit	*Don't Transmit	NETCKX0.
	Transmit	NETCKX1.

---

**Serial Programming Commands (*continued*)**

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
BPO 4 State Code (BPO)	On	BPOENA1.
	*Off	BPOENA0.
Canadian 4 State Code	On	CANENA1.
	*Off	CANENA0.
Dutch Code	*Off	KIXENA0.
	On	KIXENA1.
Australian 4 State Code	On	AUSENA1.
	*Off	AUSENA0.
Japanese Postal Code	On	JAPENA1.
	*Off	JAPENA0.
Planet Code	On	PLENA0.
	*Off	PLENA1.

**2D Matrix Symbology Selections**

QR Code Settings	*Default All QR Code Settings*	QRCDFT.
QR Code	*On	QRCENA1.
	Off	QRCENA0.
QR Code Message Length	Minimum	QRCMIN.
	Maximum	QRCMAX.
Data Matrix Settings	*Default All Data Matrix Settings*	IDMDFT.
Data Matrix	*On	IDMENA1.
	Off	IDMENA0.
Data Matrix Msg. Length	Minimum	IDMMIN.
	Maximum	IDMMAX.
MaxiCode Settings	*Default All MaxiCode Settings*	MAXDFT.
MaxiCode	On	MAXENA1.
	*Off	MAXENA0.
MaxiCode Msg. Length	Minimum	MAXMIN.
	Maximum	MAXMAX.
SCM Only	*Off	MAXSCM0.
	On	MAXSCM1.
Aztec Code Settings	*Default All Aztec Code Settings*	AZTDF.

***Serial Programming Commands (continued)***

<b>Selection</b>	<b>Setting</b>	<b>Serial Command</b>
Aztec Code	*On	AZTENA1.
	Off	AZTENA0.
Aztec Code Msg. Length	Minimum	AZTMIN.
	Maximum	AZTMAX.
VeriCode Settings <sup>1</sup>	*Default All VeriCode Settings*	VERDFT.
VeriCode <sup>1</sup>	*On	VERENA1.
	Off	VERENA0.
VeriCode Size <sup>1</sup>	Size A	VERSZA.
	Size B	VERSzb.
	Size C	VERSzc.
	Size D	VERSzd.
	Size E	VERSze.
Test Menu	*Off	TSTMNU0.
	On	TSTMNU1.
2D Scan Diagnostics	*Off	2DDIAG0.
	On	2DDIAG1.

<sup>1</sup>VeriCode settings are not available in the standard imager. An imager with VeriCode setting capability can be special ordered from the factory.

## **Query Commands**

---

Several special characters can be used to query the imager about its settings.

- ^ What is the default value for the setting(s)?
- ? What is the imager's current value for the setting(s)?
- \* What is the range of possible values for the setting(s)? (The imager's response uses a dash (-) to indicate a continuous range of values. A pipe (|) separates items in a list of non-continuous values.)

---

### ***Examples of Query Commands***

**Example #1** What is the range of possible values for Codabar Coding Enable?

Enter: cbrena\*.

Response: CBRENA0-1[ACK]

This response indicates that Codabar Coding Enable (CBRENA) has a range of values from 0 to 1 (off and on).

**Example #2** What is the default value for Codabar Coding Enable?

Enter: cbrena^.

Response: CBRENA1[ACK]

This response indicates that the default setting for Codabar Coding Enable (CBRENA) is 1 or on.

**Example #3** What is the imager's current setting for Codabar Coding Enable?

Enter: cbrena?.

Response: CBRENA1[ACK]

This response indicates that the imager's Codabar Coding Enable (CBRENA) is set to 1 or on.

**Example #4** What are the imager's settings for all Codabar selections?

Enter: cbr?.

Response: CBRENA1[ACK],

CHK0[ACK],

CKX0[ACK],

SSX0[ACK],

MIN2[ACK],

MAX60[ACK],

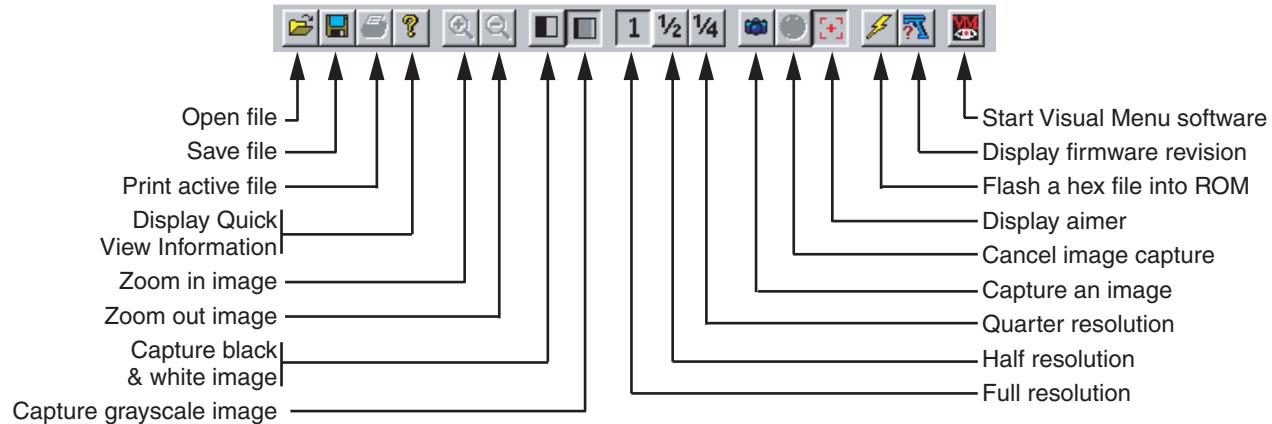
DFT[ACK].

This response indicates that the imager's Codabar Coding Enable (CBRENA) is set to 1 or on; the Check Character (CHK and CKX) is set to 0 or No Check Character; the Start/Stop Character is set to 0 or Don't Transmit; the Minimum Message Length (MIN) is 2 characters; the Maximum Message Length (MAX) is 60 characters; and the Default setting (DFT) has no value.

## **Button Bar**

---

The QuickView button bar and the button functions are shown below.



147XU002.eps

The Start Visual Menu software icon only appears if you have Visual Menu software installed. Visual Menu is available free of charge on the CD-ROM that shipped with the 147X imager.



6

## ***OCR Programming***



***Use this chapter to program the hand-held imager to read machine readable fonts used in optical character recognition (OCR). The 147X reads 6 to 60 point OCR typeface.***

## ***Introduction***

---

The 147X will read the following fonts:

- OCR-A
- OCR-B
- U.S. Currency Serial Number (Money)

You can either select an OCR default or create your own custom template for the type of OCR format you intend to read. See “OCR” later in this chapter for programming codes that will enable your imager to read OCR-A, OCR-B, or U.S. Currency fonts. See “Creating OCR Templates” if you want to create a custom “template” or character string that defines the length and content of OCR strings that will be read with your imager.



**Note:** The Visual Menu screens in this chapter may look different from the screens on your PC. Visual Menu only displays the settings that your imager supports.

## ***OCR***

---

Default All OCR Settings turns off all OCR capability in the imager, so the imager will be able to scan linear, stacked, matrix, and composite bar codes, but not OCR fonts. In addition, any OCR templates you have created are erased. The 8 digit default templates are reinstated for any future use of the OCR On mode.

In the OCR tab of Visual Menu, click Default under OCR Templates.

OCR Templates	
Template	\"'dd'ddd'ddd\"'
G Variable	\"'\"'
H Variable	\"'\"'
Check Character	\"'\"'
<input type="button" value="Default"/>	

Or scan the following bar code.

Default All OCR Settings



---

## ***Setting OCR Fonts***

OCR-A On allows you to scan characters in the OCR-A font. The default setting allows you to scan any 8 digit combination. If you have created an OCR template, character combinations that fit the template can be scanned (see “Creating an OCR Template” later in this chapter).

In the OCR tab of Visual Menu, choose OCR-A On under Type.



Or scan the following bar code.

OCR-A On



OCR-B On allows you to scan characters in the OCR-B font. The default setting allows you to scan any 8 digit combination. If you have created an OCR template, character combinations that fit the template can be scanned (see “Creating an OCR Template” later in this chapter).

In the OCR tab of Visual Menu, choose OCR-B On under Type.



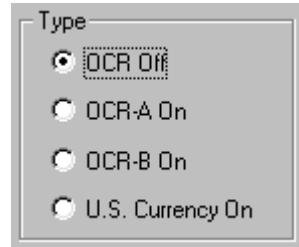
Or scan the following bar code.

OCR-B On



U.S. Currency On allows you to scan characters in the font used on U.S. currency. The default setting allows you to scan any 8 digit combination. If you have created an OCR template, character combinations that fit the template can be scanned (see “Creating an OCR Template” later in this chapter).

In the OCR tab of Visual Menu, choose U.S. Currency On under Type.



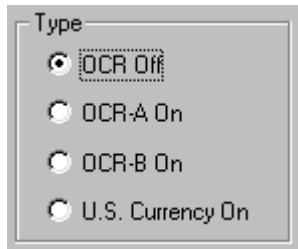
Or scan the following bar code.

U.S. Currency On



All OCR Off turns off all OCR capability in the imager, so the imager will be able to scan linear, stacked, matrix, and composite bar codes, but not OCR fonts. However, any OCR templates you have created will be retained in memory. All OCR Off is the default setting.

In the OCR tab of Visual Menu, choose OCR Off under Type.



Or scan the following bar code.

All OCR Off\*



---

## ***Creating OCR Templates***

You can create a custom “template” or character string that defines the length and content of OCR strings that will be read with your imager. There are several choices when creating a custom template for your application. You can create a template for a single format; you can string together several formats, and you can create a template for a user-defined variable. These choices are described in detail below.

### ***Creating an OCR Template***

A single template allows you to program the imager to read any combination of characters in the order you specify.

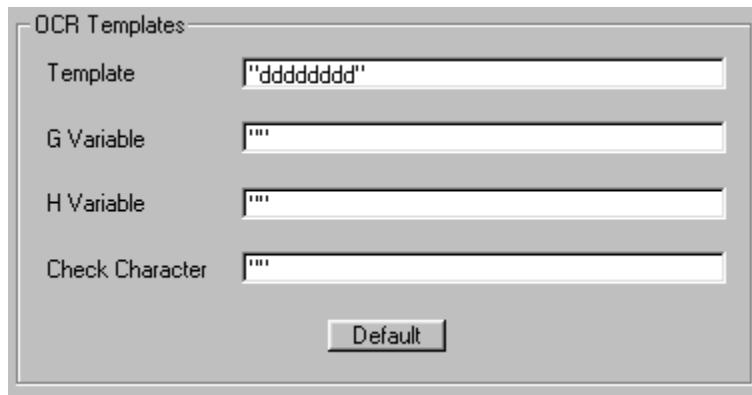
#### **Character Definition**

- a Represents any alphanumeric character (digit or letter)
- c Represents a check character position
- d Represents any digit
- e Represents any available OCR character
- g Represents user-defined variable
- h Represents user-defined variable
- l Represents any uppercase letter
- t Marks the start of a new template
- r Multi row indicator

All other characters represent themselves. Spaces can be used.

**To add an OCR template using Visual Menu**

1. Start Visual Menu, choose the OCR tab, and find OCR Templates.



2. In the Template field, enter the characters for the string. To determine what characters you need to create your format, use the Template Characters chart earlier in this chapter.

**Example A** You need to read any combination of eight digits. Enter the following template into the Template field:

ddddd ddd

This template would let you read any string of eight digits, for example:

37680981

3. Or enter the characters for a character match sequence.

**Example B** You need to read three digits, three specific characters (ABC), three digits. Enter the following template into the Template field:

dddABCddd

This template would let you read any string of three digits, “ABC,” then any string of three digits, for example:

551ABC983

4. (Optional) Put spaces in your template.

**Example C** You need to read three digits, space, three specific characters (ABC), space, three digits. Enter the following template into the template field:

ddd ABC ddd

This template would let you read any string of three digits, space, “ABC,” space, then any string of three digits, for example:

551 ABC 983

5. To send your changes to the imager, click the Write Settings to Device button (  ).

### To add an OCR template using bar codes

1. Scan the Enter OCR Template bar code.

Enter OCR Template



2. Scan the characters for the string. To determine what characters you need to create your format, use the Template Characters chart earlier in this chapter. To scan the characters for your template, use the “General Programming Chart” in Appendix B.

**Example A** You need to read any combination of eight digits. The template:

ddddddddd

To create this template, you would scan the Enter OCR Template bar code, then scan the d from the “General Programming Chart” in Appendix B eight times. Scan Save OCR Template from Step 5. This would let you read any string of eight digits, for example:

37680981

3. On the “Decimal to Hex to ASCII Conversion Chart” in Chapter 3, find the Hex value that represents the character(s) you want to match. To scan the numbers that represent these characters, use the “General Programming Chart” in Appendix B.

**Example B** You need to read three digits, three specific characters (ABC), three digits. The template:

ddd414243ddd

where 414243 are the hex codes for letters A, B, and C

To create this template, you would scan the Enter OCR Template bar code, scan the d from the “General Programming Chart” in Appendix B three times, scan 414243 from the “General Programming Chart” in Appendix B (the hex characters for “A,” “B,” and “C”), then scan the d from the “General Programming Chart” in Appendix B three more times. Scan Save OCR Template from Step 5. This would let you read any string of three digits, “ABC,” then any string of three digits, for example:

551ABC983

4. (Optional) Put spaces in your template.

**Example C** You need to read three digits, space, three specific characters (ABC), space, three digits. The template:

ddd2041424320ddd

where 20 is the hex code for a space

To create this template, you would scan the Enter OCR Template bar code, scan the d from the “General Programming Chart” in Appendix B three times, scan 2041424320 from the “General Programming Chart” in Appendix B (the hex characters for “space,” “A,” “B,” “C,” “space”), then scan the d from the “General Programming Chart” in Appendix B three more times. Scan Save OCR Template from Step 5. This would let you read any string of three digits, space, “ABC,” space, then any string of three digits, for example:

551 ABC 983

5. Scan Save OCR Template to save your entries. Discard OCR Template exits without saving any OCR Template changes.

Save OCR Template



Discard OCR Template



### ***Stringing Together Multiple Formats (Creating “Or” Statements)***

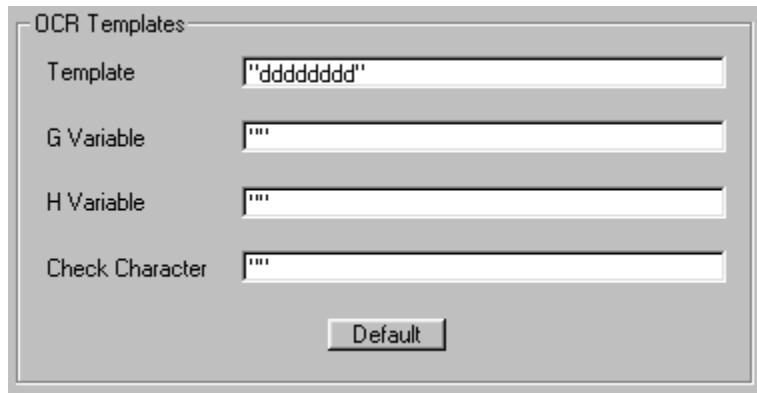
You may want to program the imager to accept many OCR formats. To do this, you would string together each format with a “t.” This tells the imager to read optical characters that match any one of the formats in the template.

**Example D** You need to read any combination of eight digits, or a combination of four digits, two uppercase letters, and two digits. The template:

dddddddddtddddlldd

### To create the template in Example D

1. Start Visual Menu, choose the OCR tab, and find OCR Templates.



2. In the Template field, enter  
dddddllldd
5. Click the Write Settings to Device button ().

This template would let you read either type of format.

For example:

99028650

or

9902XZ50

You can string together as many templates as you need.

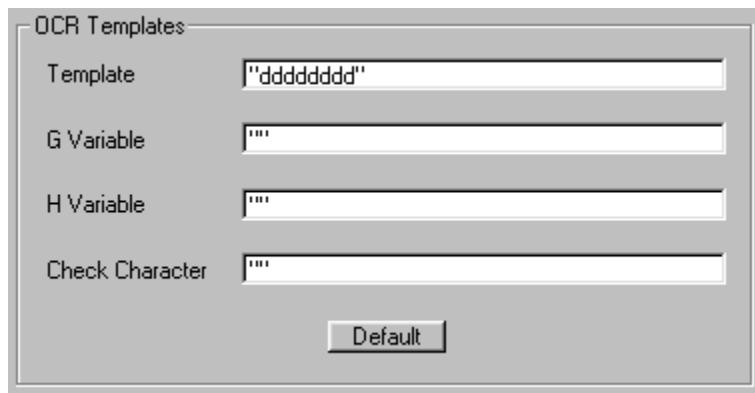
### ***Creating a User-Defined Variable***

You can create up to two of your own user variables for an OCR template. These variables will represent any OCR readable characters. The user-defined variables are stored under the letters "g" and "h."

**Example E** You need a variable to represent the letters "A," "B," or "C."

### To create the template for Example E using Visual Menu

1. Start Visual Menu, choose the OCR tab, and find OCR Templates.



2. In the Template field, enter ddddddggg.
3. In the G Variable field, enter ABC.
4. Click the Write Settings to Device button ( ).

### To create the template for Example E using bar codes

1. Scan the Enter User-Defined Variable “g” bar code.

Enter User-Defined Variable “g”



2. Scan 414243 from the “General Programming Chart” in Appendix B (the hex characters for “A,” “B,” and “C”).
3. Scan Save OCR Template.

Save OCR Template



Discard OCR Template



This variable will let you read either A or B or C in any position where you place the g. For example, you could create the following template:

ddddddg<sub>g</sub>gg

This template would then let you read data that began with 6 digits and had an A, B, or C trailing. So you would be able to read:

654321ABC

or

654321BAC

or

654321CCC

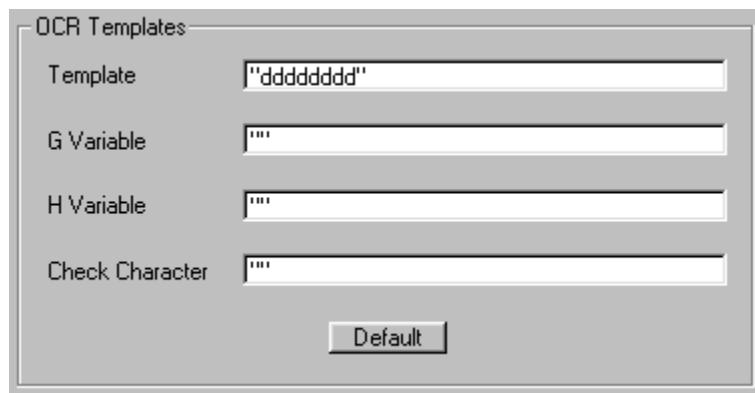
### ***Adding an OCR Check Character***

You may want to program the imager to read OCR strings that have a check character. The 147X reads and strips out the OCR check character created using a modulo 10 or modulo 36 table. (Modulo 10 being digits 0-9, modulo 36 being digits 0-9 and characters A-Z.)

Scan the Modulo 10 or Modulo 36 Check Character bar code to specify the type of check character used in the OCR strings you're scanning. The imager will then only read OCR character strings with a valid check character. The 147X transmits the OCR data without the check character data. You must specify the location of the check character in the template with a c.

#### **To add an OCR Check Character in Visual Menu**

1. Start Visual Menu, choose the OCR tab, and find OCR Templates.



2. In the Template field, enter your template with a c where the check character will be. For example, enter ddddc to read any combination of six digits with a check character in the 7<sup>th</sup> position.

3. In the Check Character field, enter the check character.
4. Click the Write Settings to Device button (  ).

**Example F** You need to read any combination of six digits, with a modulo 10 check character in the 7<sup>th</sup> position. The template:

ddddddc

#### To create the template in Example F

1. Scan the Modulo 10 Check Character bar code.

Modulo 10 Check Character



2. Scan the Enter OCR Template bar code.

Enter OCR Template



3. Scan the d from the “General Programming Chart” in Appendix B six times, and scan the c once.
4. Scan Save OCR Template.

Save OCR Template



Discard OCR Template



This template will let you read any combination of six digits with a correct check character after. (If the check character is invalid, the imager will issue an error beep.) For example, the following string could be scanned:

0123455

and the output would be: 012345

### **Reading Multi-Row OCR**

The 147X is capable of decoding multi-row OCR text. Consider the following example.

**Example G** You need to read multiple rows of OCR data as shown below:

12345678

ABCDEFGH

To read the first row of OCR data, you would menu the following template:

OCRTMP"ddddddd"

This template is the default OCR template. If you wanted to read the second line of data, you would use the following template:

OCRTMP"lllllll"

To read both lines of OCR at one time, use the variable r to indicate the start of a new row. All of the other templating variables for the individual rows work the same as previously described. For instance, in the above example, you would use the following template to read both rows:

OCRTMP"dddddddrllllll"

To read the three rows below, you would use the template command "OCRTMP"dddddddrlllllllrlllllddd".

12345678

ABCDEFGH

ABCD1234



**Note:** Reading more than three rows of OCR is not recommended.

## ***OCR Template Codes***

---

Enter OCR Template (see Note)



Enter User-Defined Variable "g"



Enter User-Defined Variable "h"



Modulo 10 Check Character



Modulo 36 Check Character



**Note:** One or more two-digit numbers and Save are required after reading this programming bar code. Refer to the “General Programming Chart” in Appendix B.

## ***Exit Selections***

---

Save OCR Template



Discard OCR Template





7

## ***Default Charts***



*This chapter lists the factory default settings for the 1470 and 1471 imagers.*

## ***General Defaults***

---

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
Terminal ID	000	3-7
Terminal ID - Keyboard Wedge	003	3-7
Terminal ID - True RS-232	000	3-7
Keyboard Country	0	3-9
Keyboard Style	Regular	3-10
Keyboard Modifiers	Control + ASCII Off	3-12
	Turbo Mode Off	3-13
	Numeric Keypad Off	3-13
	Auto Direct Connect Off	3-13

## ***Communication (RS-232) Selections***

---

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
Parity	None	3-16
Baud Rate	38400	3-17
Word Length Data Bits	8	3-18
Word Length Stop Bits	1	3-19
Hardware Flow Control	Off	3-19
Software Flow Control	Off	3-20
Serial Triggering	On = 18, Off = 20	3-21
Trigger Timeout	60 seconds	3-22

## **Imager Selections**

---

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
Power Saving Mode	Normal Power	3-23
Power Hold Mode	Off	3-24
LED Power Level	High	3-25
LED Flashing	On	3-26
Aimer Delay	Off (no delay)	3-27
Aimer Interval	Every Read	3-28
Scan Stand	Off	3-29
Scan Stand LED Intensity	15	3-30
Scan Stand Lights	On	3-31
Presentation Mode	Off	3-32
Presentation Reread Delay	500 ms	3-33
Presentation Lights	On	3-34
Beeper Volume	High	3-37
Power Up Beeper	On	3-38
Output Sequence Beeper	On	3-39
Beep On Decode	On	3-40
Intercharacter Delay	0	3-41
Interfunction Delay	0	3-42
Intermessage Delay	0	3-43

## **Prefix/Suffix Selections**

---

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
Prefix	None	3-52
Suffix	CR/LF	3-52

## **Data Formatter Selections**

---

Parameter	Default Setting	Page
Data Format	None	3-63
Data Formatter	On	3-63
Require Data Format	Not Required	3-65

## **Output Sequence Selections**

---

Parameter	Default Setting	Page
Multiple Bar Codes	Off	3-73
Require Output Sequence	Don't Require	3-72
No Read	Off	3-74
Print Weight	4	3-75
Function Code Transmit	On	3-76

## **Linear Symbologies**

---

Parameter	Default Setting	Page
<b>Codabar</b>	On	4-5
Start/Stop Characters	Don't Transmit	4-6
Message Length	Min = 2, Max = 60	4-7
Check Character	No Check Character	4-8
<b>Code 39</b>	On	4-10
Start/Stop Characters	Don't Transmit	4-11
Message Length	Min = 2, Max = 48	4-12
Full ASCII	Off	4-13
Check Character	No Check Character	4-15
<b>Code 11</b>	Off	4-16
Message Length	Min = 1, Max = 80	4-17
Check Digits Required	Two Check Digits	4-17

---

**Linear Symbologies (continued)**

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
<b>Interleaved 2 of 5</b>	On	4-19
Message Length	Min = 4, Max = 80	4-19
Check Digit	No Check Character	4-20
<b>IATA 2 of 5</b>	Off	4-22
Message Length	Min = 4, Max = 80	4-23
<b>MSI</b>	Off	4-24
Message Length	Min = 4, Max = 48	4-24
Check Digit	Don't Transmit	4-25
<b>Code 93</b>	Off	4-26
Message Length	Min = 0, Max = 80	4-27
<b>Code 128</b>	On	4-29
Message Length	Min = 0, Max = 80	4-29
<b>ISBT</b>	Off	4-31
<b>EAN/JAN 8</b>	Off	4-33
Check Digit	Don't Transmit	3-34
EAN/JAN 8 Addenda	Off	4-35
EAN/JAN 8 Addenda Required	Off	4-36
EAN/JAN 8 Addenda Separator	No Space	4-37
<b>EAN/JAN 13</b>	On	4-39
Check Digit	Don't Transmit	4-40
EAN/JAN 13 Addenda	Off	4-41
EAN/JAN 13 Addenda Required	Off	4-42
EAN/JAN 13 Addenda Separator	No Space	4-43
<b>UPC A</b>	On	4-45
Check Digit	Don't Transmit	4-46
Number System	Transmit	4-47
UPC A Addenda	Off	4-48
UPC A Addenda Required	Off	4-49
UPC A Addenda Separator	No Space	4-50

---

***Linear Symbologies (continued)***

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
<b>UPC E0</b>	Off	4-52
Check Digit	Don't Transmit	4-53
Number System	Don't Transmit	4-54
Version E Expand	Don't Expand	4-55
<b>UPC E1</b>	Off	4-56
UPC E0/E1 Addenda	Off	4-57
UPC E0/E1 Addenda Required	Off	4-58
UPC E0/E1 Addenda Separator	No Space	4-59
<b>RSS-14</b>	Off	4-61
RSS-14 Limited	Off	4-63
RSS-14 Expanded	Off	4-65
RSS-14 Expanded Message Length	Min = 1, Max = 80	4-65

---

***Stacked Symbologies***

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
<b>Codablock</b>	Off	4-68
Message Length	Min = 0, Max = 2048	4-68
<b>PDF 417</b>	On	4-70
Message Length	Min = 1, Max = 2750	4-70
<b>Micro PDF 417</b>	On	4-72
Message Length	Min = 1, Max = 2750	4-73
<b>Code 49</b>	Off	4-75
Message Length	Min = 1, Max = 81	4-75
<b>Composite Codes</b>	Off	4-76
Message Length	Min = 1, Max = 300	4-77

## **Postal Symbology Selections**

---

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
POSTNET Code (USPS)	Off	4-79
Planet Code	Off	4-80
BPO 4 State Code	Off	4-81
Canadian 4 State Code	Off	4-81
Dutch Code	Off	4-82
Australian 4 State Code	Off	4-83
Japanese Postal Service	Off	4-84

## **2D Matrix Selections**

---

<b>Parameter</b>	<b>Default Setting</b>	<b>Page</b>
<b>QR Code</b>	On	4-86
Message Length	Min = 1, Max = 3500	4-86
<b>Data Matrix</b>	On	4-88
Message Length	Min = 1, Max = 1500	4-88
<b>MaxiCode</b>	Off	4-90
Message Length	Min = 1, Max = 150	4-91
SCM Only	Off	4-92
<b>Aztec Code</b>	On	4-93
Message Length	Min = 1, Max = 3750	4-94
<b>VeriCode</b>	On	4-95
VeriCode Size	0 or Off (all sizes on)	4-96

8

## ***Interface Keys***



*This chapter lists the supported interface keys.*

## ***IBM AT/XT, PS/2, XTs, WYSE PC/AT, DDC, Memorex Telex, Harris***

---

<b>Supported Interface Keys</b>		<b>IBM AT/XT and PS/2 Compatibles, WYSE PC/AT</b>	<b>IBM XTs and Compatibles</b>	<b>IBM, DDC, Memorex Telex, Harris*</b>
NUL	00	Reserved	Reserved	Reserved
SOH	01	Enter (KP)	CR/Enter	Enter
STX	02	Caps Lock	Caps Lock	F11
ETX	03	ALT make	Reserved	F12
EOT	04	ALT break	Reserved	F13
ENQ	05	CTRL make	Reserved	F14
ACK	06	CTRL break	Reserved	F15
BEL	07	CR/Enter	CR/Enter	New Line
BS	08	Reserved	Reserved	F16
HT	09	Tab	Tab	F17
LF	0A	Reserved	Reserved	F18
VT	0B	Tab	Tab	Tab/Field Forward
FF	0C	Delete	Delete	Delete
CR	0D	CR/Enter	CR/Enter	Field Exit/New Line
SO	0E	Insert	Insert	Insert
SI	0F	Escape	Escape	F19
DLE	10	F11	Reserved	Error Reset
DC1	11	Home	Home	Home
DC2	12	Print	Print	F20
DC3	13	Back Space	Back Space	Back Space
DC4	14	Back Tab	Back Tab	Backfield/Back Tab
NAK	15	F12	Reserved	F21
SYN	16	F1	F1	F1
ETB	17	F2	F2	F2
CAN	18	F3	F3	F3
EM	19	F4	F4	F4
SUB	1A	F5	F5	F5

---

**IBM AT/XT, PS/2, XTs, WYSE PC/AT, DDC, Memorex Telex, Harris (continued)**

<b>Supported Interface Keys</b>		<b>IBM AT/XT and PS/2 Compatibles, WYSE PC/AT</b>	<b>IBM XTs and Compatibles</b>	<b>IBM, DDC, Memorex Telex, Harris*</b>
ESC	1B	F6	F6	F6
FS	1C	F7	F7	F7
GS	1D	F8	F8	F8
RS	1E	F9	F9	F9
US	1F	F10	F10	F10

\*IBM 3191/92, 3471/72, 3196/97, 3476/77, Telex (all models)

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## **IBM and Memorex Telex (88 and 102)**

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<b>Supported Interface Keys</b>		<b>IBM, Memorex Telex (102)*</b>	<b>Memorex Telex (88)**</b>
NUL	00	Reserved	Reserved
SOH	01	Enter	Enter
STX	02	F11	PF10
ETX	03	F12	PF11
EOT	04	F13	PF12
ENQ	05	F14	Reserved
ACK	06	F15	Reserved
BEL	07	New Line	New Line
BS	08	F16	Field Forward
HT	09	F17	Field Forward
LF	0A	F18	Reserved
VT	0B	Tab/Field Forward	Field Forward
FF	0C	Delete	Delete
CR	0D	Field Exit	New Line
SO	0E	Insert	Insert
SI	0F	Clear	Erase
DLE	10	Error Reset	Error Reset

---

***IBM and Memorex Telex (88 and 102)***

<b>Supported Interface Keys</b>		<b>IBM, Memorex Telex (102)*</b>	<b>Memorex Telex (88)**</b>
DC1	11	Home	Reserved
DC2	12	Print	Print
DC3	13	Back Space	Back Space
DC4	14	Back Tab	Back Field
NAK	15	F19	Reserved
SYN	16	F1	PF1
ETB	17	F2	PF2
CAN	18	F3	PF3
EM	19	F4	PF4
SUB	1A	F5	PF5
ESC	1B	F6	PF6
FS	1C	F7	PF7
GS	1D	F8	PF8
RS	1E	F9	PF9
US	1F	F10	Home

\*IBM 3196/97, 3476/77, 3191/92, 3471/72, Memorex Telex (all models) with 102 key keyboards

\*\*Memorex Telex with 88 key keyboards

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***Esprit 200, 400 ANSI, ASCII, and PC***

<b>Supported Interface Keys</b>		<b>Esprit 200, 400 ANSI</b>	<b>Esprit 200, 400 ASCII</b>	<b>Esprit 200, 400 PC</b>
NUL	00	Reserved	Reserved	Reserved
SOH	01	New Line	New Line	New Line
STX	02	N/A	N/A	N/A
ETX	03	N/A	N/A	N/A
EOT	04	N/A	N/A	N/A
ENQ	05	N/A	N/A	N/A

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**Esprit 200, 400 ANSI, ASCII, and PC**

<b>Supported Interface Keys</b>		<b>Esprit 200, 400 ANSI</b>	<b>Esprit 200, 400 ASCII</b>	<b>Esprit 200, 400 PC</b>
ACK	06	N/A	N/A	N/A
BEL	07	New Line	New Line	New Line
BS	08	N/A	N/A	N/A
HT	09	Tab	Tab	Tab
LF	0A	N/A	N/A	N/A
VT	0B	Tab	Tab	Tab
FF	0C	N/A	N/A	Delete
CR	0D	New Line	New Line	New Line
SO	0E	N/A	N/A	Insert
SI	0F	Escape	Escape	Escape
DLE	10	F11	F11	F11
DC1	11	Insert	Insert	Home
DC2	12	F13	F13	Print
DC3	13	Back Space	Back Space	Back Space
DC4	14	Back Tab	Back Tab	Back Tab
NAK	15	F12	F12	F12
SYN	16	F1	F1	F1
ETB	17	F2	F2	F2
CAN	18	F3	F3	F3
EM	19	F4	F4	F4
SUB	1A	F5	F5	F5
ESC	1B	F6	F6	F6
FS	1C	F7	F7	F7
GS	1D	F8	F8	F8
RS	1E	F9	F9	F9
US	1F	F10	F10	F10

9

## ***Maintenance and Troubleshooting***



*This chapter provides maintenance instructions and explains how to troubleshoot the 147X imager.*

## **Repairs**

---

Repairs and/or upgrades to this product are to be performed only by an authorized service center. To contact an authorized service center, call one of the following numbers:

- U.S. service and technical support: 1-800-755-5505
- Canadian service and technical support: 1-800-668-7043
- Outside U.S. and Canada: Contact your local Intermec service supplier

## **Maintenance**

---

The 147X imager provides reliable and efficient operation with a minimum of care. Although specific maintenance is not required, the following periodic checks ensure dependable imager operation.

### ***Cleaning the Imager's Window***

Reading performance may degrade if the imager's window is not clean. If the window is visibly dirty or if the imager isn't operating well, clean the window with a soft cloth or facial tissue dampened with water (or a mild detergent water solution). If a detergent solution is used, rinse with a clean tissue dampened with water only.

The imager's housing may also be cleaned the same way.



#### **Caution**

*Do not submerge the imager in water. The imager's housing is not water-tight. Do not use abrasive wipers or tissues on the imager's window; abrasive wipers may scratch the window. Never use solvents (alcohol or acetone) on the housing or window; solvents may damage the finish or the window.*

#### **Conseil**

*Ne pas immerger l'imageur dans l'eau. Le boîtier de l'imageur n'est pas étanche. Ne pas utiliser de chiffons ou serviettes abrasifs sur la fenêtre de l'imageur ; les chiffons abrasifs peuvent rayés la fenêtre. Ne jamais utiliser de solvants (alcool ou acétone) sur le boîtier ou la fenêtre ; les solvants peuvent endommager la couche de finition ou la fenêtre.*

---

## ***Inspecting Cords and Connectors***

Inspect the imager's interface cable and connector for wear or other signs of damage. A badly worn cable or damaged connector may interfere with imager operation. Contact your Intermec representative to order replacement cables. For information on replacing interface cables, see "Replacing the Interface Cable" later in this chapter.

---

## ***Examining the Imager's Housing***

Routinely examine the imager's housing for signs of damage. A damaged housing may cause the internal components to move and may result in a malfunctioning imager.

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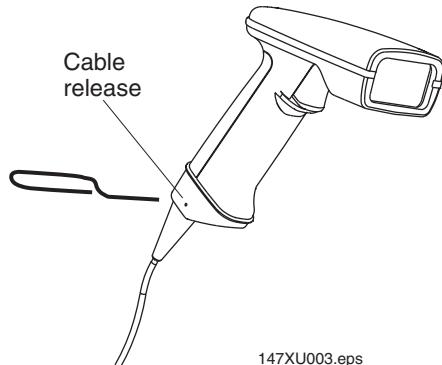
## ***Replacing the Interface Cable***

The standard interface cable is attached to the imager with a 10-pin modular connector. When properly seated, the connector is held in the imager's handle by a flexible retention tab. The cable is designed to be field replaceable.

- Order replacement cables from your Intermec representative.
- When ordering a replacement cable, specify the cable part number of the original interface cable.

### **To replace the 1470 interface cable**

1. Turn off the power to the host system.
2. Disconnect the imager's cable from the terminal or computer.
3. Locate the small hole on the side of the imager's handle near the base (cable release).
4. Straighten one end of a paper clip.
5. Insert the end of the paper clip into the small hole and press in. This depresses the retention tab, releasing the connector. Pull the connector out of the imager's handle while maintaining pressure on the paper clip.

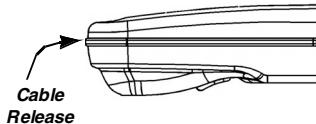


147XU003.eps

6. Replace with the new cable. Insert the connector into the opening at the base of the imager's handle. Press firmly. The connector is "keyed" to go in only one way and clicks into place.

### **To replace the 1471 interface cable**

1. Turn off the power to the host system.
2. Disconnect the imager's cable from the terminal or computer.
3. Insert a small, flat head screwdriver into the slot between the cable and the back end of the housing.
4. Press the screwdriver tip down to depress the retention tab, releasing the connector.



5. Pull the connector out of the imager while maintaining pressure on the screwdriver.
6. Replace with the new cable. Insert the connector into the opening at the base of the imager. Press firmly. The connector is "keyed" to go in only one way, and will click into place.

---

## **Troubleshooting**

The imager automatically performs self-tests whenever you turn it on. If your imager is not functioning properly, review the following Troubleshooting Guide to try to isolate the problem.

### ***Is the power on? Are the illumination LEDs on?***

If the illumination LEDs in the imager aren't illuminated, check that

- the cable is connected properly.
- the host system power is on (if external power isn't used).

### ***Is the imager having trouble reading your bar codes?***

If the imager isn't reading bar codes well, check that the bar codes

- aren't smeared, rough, scratched, or exhibiting voids.
- aren't coated with frost or water droplets on the surface.
- are enabled in the imager or in the decoder the imager connects to.



A

## ***Specifications and Pinouts***





*This appendix lists the specifications and pinouts for the 147X imagers.*

## **1470 Specifications**

---

### ***Physical Specifications***

Length 15.4 cm (6.1 in.)

Height 14.2 cm (5.6 in.)

Width 6.4 cm (2.5 in.)

Weight Less than 198 g (7 oz.), without cable

### ***LEDs***

Illumination Source 660 nm illumination LEDs

Aiming Pattern Source 660 nm illumination LEDs

### ***Focal Point (focus)***

Standard Range 17.8 cm (7 in.) from imager's nose

High Density 5.1 cm (2 in.) from imager's nose

### ***Field of View***

Standard Range 8.62 cm by 10.92 cm at 17.8 cm (3.25 in. by 4.3 in. at 7 in.)

High Density 3.4 cm by 2.5 cm at 5.1 cm (1.35 in. by 1.0 in. at 2.0 in.)

### ***Electrical Specifications***

Operating Voltage 4.0 VDC - 9.0 VDC

Power Supply 5 VDC input

Peak Current 550 mA (when illumination LEDs are on)

Current Draw (Low Power Mode) Average at 5 VDC - 40mA

Current Draw (Medium Power Mode) Average at 5 VDC - 125mA

Current Draw (Normal Power Mode) Average at 5 VDC - 175mA

***Environmental Specifications***

Ambient Light	Total darkness to 100,000 Lux (sunlight)
Operating Temperature	-0°C to +50°C (32°F to +122°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Humidity	95% RH non-condensing, at +50°C (+122°F)
Mechanical Shock	10 drops from 1.5 m (5 feet) to concrete

***Miscellaneous***

Rotational Sensitivity	360° around optical axis
Viewing Angle	±45° at the nominal operating distance
Motion Sensitivity	approx. 5 cm (2 in.) per second of lateral motion
Video Image	8-bits per pixel
ESD Sensitivity	15 kV to any external surface

***Agency Compliance***

FCC Class B, Canadian Class B, CE 55022 Class B, UL/CUL Listed to UL1950 CSA 22.2 950, TUV Certified to EN60950 and EN 60825-1 Class 1, CTick, GS

## **1471 Specifications**

---

***Physical Specifications***

Length	12.3 cm (4.85 in.)
Height	4.7 cm (1.85 in.)
Width	6.4 cm (2.5 in.)
Weight	Less than 198 g (5.5 oz.), without cable

***LEDs***

Illumination Source	660 nm illumination LEDs
Aiming Pattern Source	660 nm illumination LEDs

***Focal Point (focus)***

Standard Range	17.8 cm (7 in.) from imager's nose
High Density	5.1 cm (2 in.) from imager's nose



***Field of View***

Standard Range    8.25 cm by 10.92 cm at 17.8 cm (3.25 in. by 4.3 in. at 7 in.)  
High Density      3.4 cm by 2.5 cm at 5.1 cm (1.35 in. by 1.0 in. at 2.0 in.)

***Electrical Specifications***

Operating Voltage    4.0 VDC - 9.0 VDC  
Power Supply        5 VDC input  
Peak Current        550 mA (when illumination LEDs are on)  
Current Draw (Low Power Mode)    Average at 5 VDC - 40mA  
Current Draw (Medium Power Mode)    Average at 5 VDC - 125mA  
Current Draw (High Power Mode)    Average at 5 VDC - 175mA

***Environmental Specifications***

Ambient Light        Total darkness to 100,000 Lux (sunlight)  
Operating Temperature    -0°C to +50°C (32°F to +122°F)  
Storage Temperature    -40°C to +70°C (-40°F to +158°F)  
Humidity            95% RH non-condensing, at +50°C (+122°F)  
Mechanical Shock     10 drops from 1.5 m (5 feet) to concrete

***Miscellaneous***

Rotational Sensitivity    360° around optical axis  
Viewing Angle          ±45° at the nominal operating distance  
Motion Sensitivity     approx. 5 cm (2 in.) per second of lateral motion  
Video Image            8-bits per pixel  
ESD Sensitivity        15 kV to any external surface

***Agency Compliance***

FCC Class B, Canadian Class B, CE 55022 Class B, UL/CUL Listed to UL1950 CSA 22.2 950, TUV Certified to EN60950 and EN 60825-1 Class 1, CTick, GS

## **Depth of Field Charts**

---

All depth of field measurements are made from the 147X lens plate, which is 0.25 cm (0.100 inch) from the front surface of the 147X window.

---

### **Depth of Field for High Density Imager (5.1 cm [2 in.] Nominal Focus)**

<b>Code Size</b>	<b>Near Distance</b>	<b>Far Distance</b>
QR 0.017 cm (6.6 mil)	4.3 cm (1.7 inches)	6.1 cm (2.4 inches)
Data Matrix 0.017 cm (6.6 mil)	4.3 cm (1.7 inches)	6.1 cm (2.4 inches)
Linear 0.01 cm (4 mil)	5.7 cm (1.5 inches)	6.4 cm (2.5 inches)
OCR 20 cpi (6 pt.)	5.1 cm (2 inches)	8.9 cm (3.5 inches)

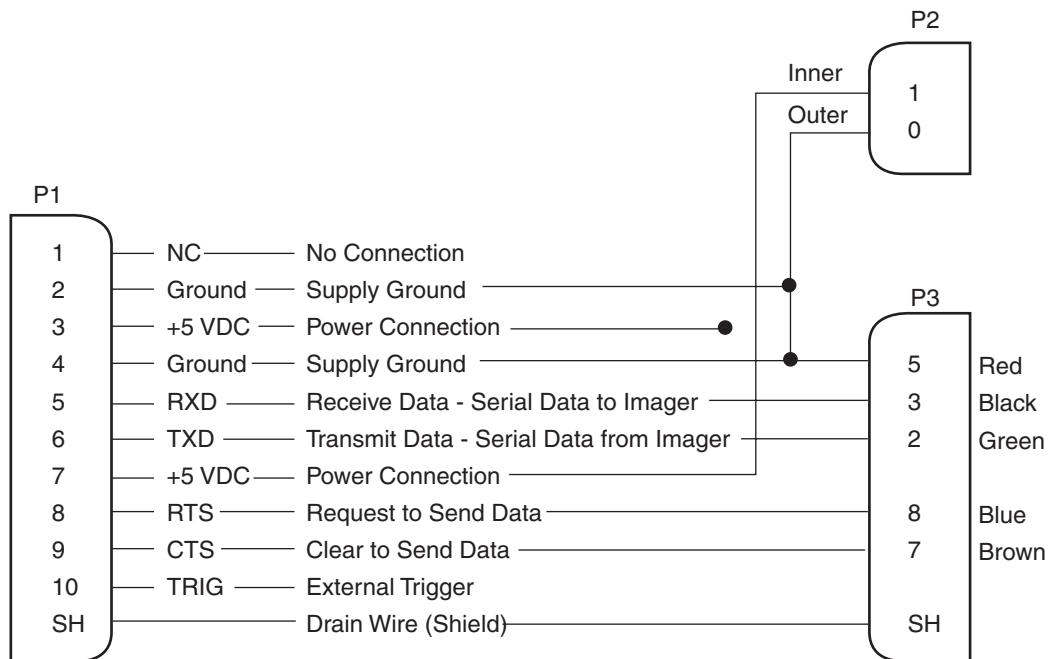
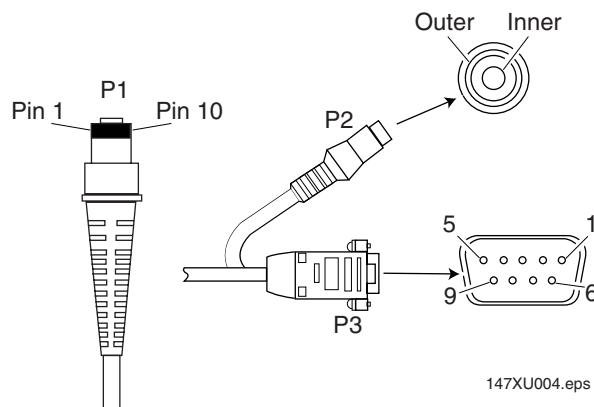
---

### **Depth of Field for Standard Range Imager (17.8 cm [7 in.] Nominal Focus)**

<b>Code Size</b>	<b>Near Distance</b>	<b>Far Distance</b>
Code 39 0.038 cm (15 mil)	5.3 cm (2.1 inches)	35.8 cm (13.8 inches)
Code 39 0.025 cm (10 mil)	7.1 cm (2.8 inches)	24.1 cm (9.5 inches)
Code 39 0.038 cm (8 mil)	8.9 cm (3.5 inches)	20.3 cm (8.0 inches)
Data Matrix 0.038 cm (15 mil)	9.4 cm (3.7 inches)	15 cm (5.9 inches)
UPC 0.033 cm (13 mil)	5.8 cm (2.3 inches)	33.0 cm (13 inches)
MaxiCode 0.089 cm (35 mil)	5.1 cm (2 inches)	38.1 cm (15.0 inches)
12 pt. OCR-A	4.1 cm (1.6 inches)	31.2 cm (12.3 inches)
12 pt. OCR-B	3.8 cm (1.5 inches)	28.5 cm (11.2 inches)
Postnet	9.4 cm (3.7 inches)	15.2 cm (6.0 inches)
PDF 0.017 cm (6.6 mil)	10.2 cm (4.0 inches)	16.0 cm (6.3 inches)
PDF 0.020 cm (8 mil)	7.6 cm (3.0 inches)	21.1 cm (8.3 inches)
PDF 0.025 cm (10 mil)	6.9 cm (2.7 inches)	24.9 cm (9.8 inches)

## Cable Pinouts for RS-232 Output, External Power

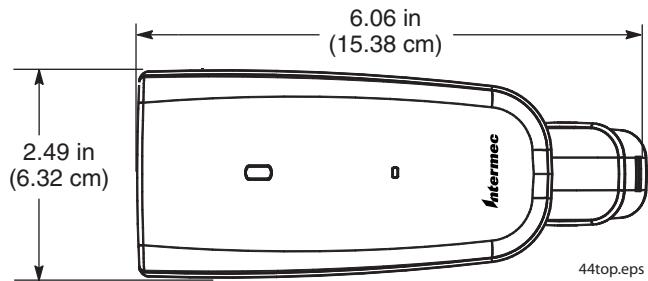
Decoded output data format is provided at the modular connector in the imager. Interface cables normally supplied with the imager are terminated with a 10 pin modular plug (P1) and a 9 pin Type D connector (P3) that is compatible with all Intermec decoders and terminals. See chart below. (The power pigtail applies to serial wedge cable, which is not shown.)



## **1470 Dimensions**

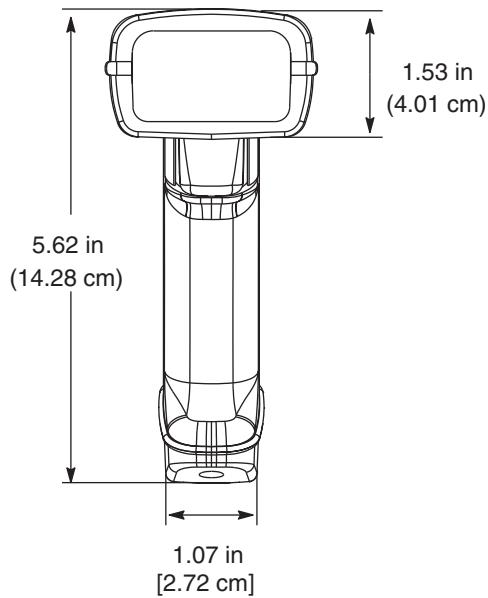
---

**Top View**

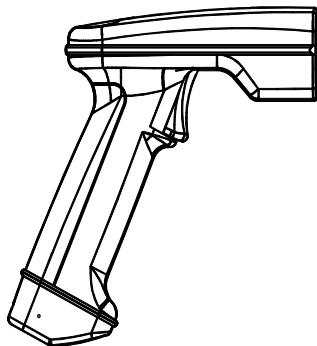


44top.eps

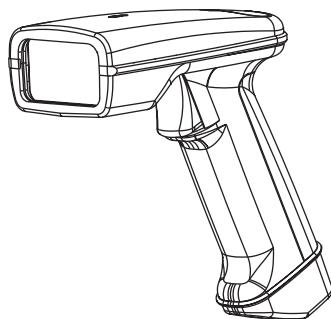
**Front View**



***Side View***



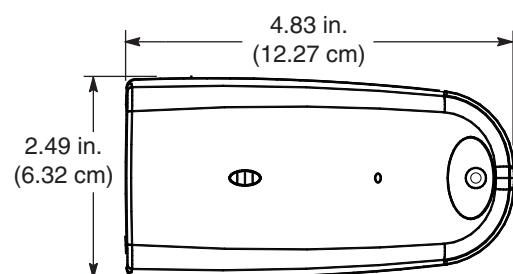
***3/4 View***



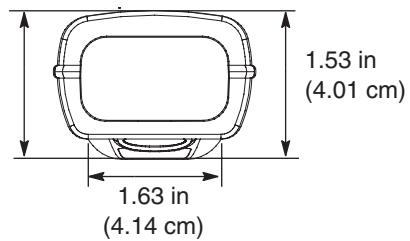
## ***1471 Dimensions***

---

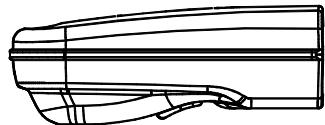
***Top View***



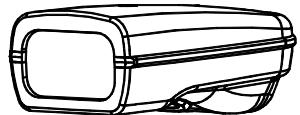
**Front View**



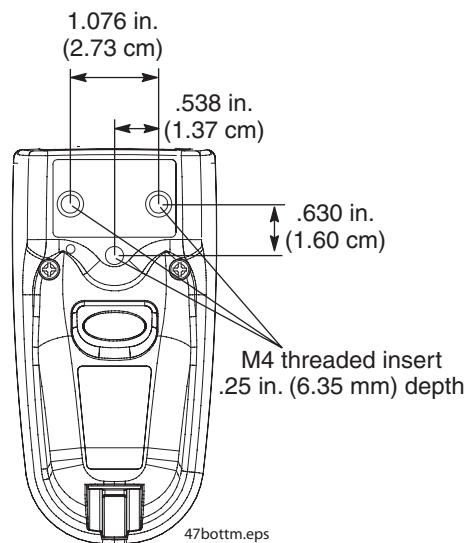
**Side View**



**3/4 View**



**Bottom View**



**B**

***Sample and Programming Bar Codes***



*This appendix provides samples of different symbologies and programming bar codes.*

## **Sample Bar Codes**

---

PDF 417



Car Registration

Postnet



Zip Code

Code 49



1234567890

Data Matrix



Test Bar Code

OCR-A Sample

55836540

QR Code



Numbers

OCR-B Sample

55836540

**1470/1471 Imager User's Manual**

Aztec



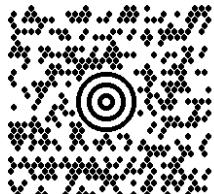
Package Label

Aztec Mesa Code



Test Message

MaxiCode



Test Message

Micro PDF 417



Test Message

UPC A



0 123456 7890

Interleaved 2 of 5



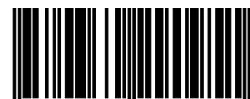
1234567890

Code 128



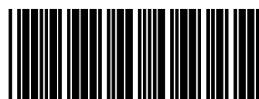
Code 128

EAN 13



9 780330 290951

Code 39



BC321

Codabar



A13579B

## ***OCR Programming Chart***

---

a



c



d



e



g



h



i



r



t



Save



Discard



## General Programming Chart

0



1



2



3



4



5



6



7



8



9



A



B



C



D



E



F



Save



Discard





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